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JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

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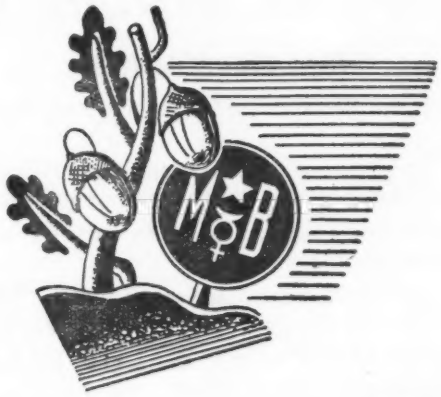

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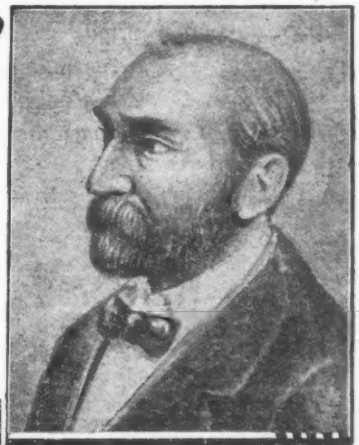

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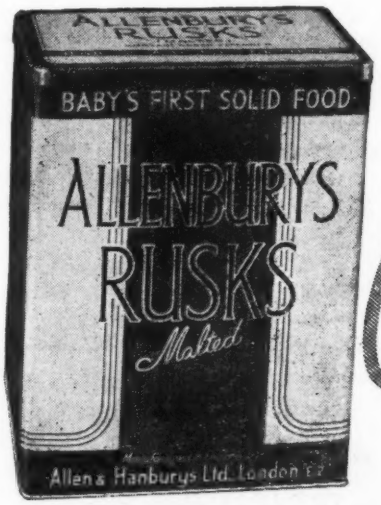

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SENILE ENLARGEMENT OF THE PROSTATE

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Bombay.

I must first of all thank you for having asked me to preside over the Surgical Section of the 18th All India Medical Conference. I wish I could repay this honour you have done me by telling you about something new and wonderful in the science or art of Surgery. I regret very much to say that I have nothing like that to offer you and you will have to be content with a very ordinary consideration of the subject I have chosen supplemented by the little personal experience that I have in the matter.

I have chosen this subject mainly because the cases I have come across have been often in the advanced stage and as I felt that most of the members attending this Conference will be general practitioners who see the cases first, it would be worth while to again draw their attention to this condition.

Senile enlargement of the prostate necessarily means that enlargement which is associated with old age. It automatically excludes all those enlargements which are due to inflammation or due to malignancy.

This enlargement of the prostate is most common after the age of fifty though I have operated on a genuine case aged 43 years. Of course one may come across this condition at a much later period, *i.e.*, the patient comes to you at a very late age but careful inquiry will always show that there have been symptoms though in a mild form, traceable back many years. My oldest patient was seventy eight but the history could be traced back quite twenty years. The most common age is between 50 and 60. Of the 123 cases in my series, 2 were between 70-80, 23 between 60-70, 95 between 50-60 and three below 50.

Regarding the causation of this disease nobody can be definite but some general conclusions can be drawn. The prostate is a sexual gland and its secretion has an effect on the semen; the semen as stored in the vesicles is lumpy. The prostatic secretion helps to liquefy it and thus allow the spermatozoa to go on their wanderings. The metabolic products and an internal secretion are absorbed from the prostate and probably they have some effect on sexual function. But there is no doubt whatsoever that the testicular hormone has a profound effect on the prostate. The testicular function has reached its maximum in most men by the age 50 or even perhaps earlier in this country. Anyhow in most men the testicular function is on the down grade by fifty years. The prostate is a sex gland and we know that enlargement occurs after the age of 50. It is not at all likely that while one part of the sexual apparatus and that one a very important one like the testicle is on the downgrade, another and that a subsidiary one like the prostate will be on the up-grade. We can take it, therefore, that the enlargement of the prostate is either a degenerative change or a reaction of the prostate to the deficient testicular hormone. A simile is often drawn between the so-called "chronic mastitis" of the menopause in which there are cystic changes in the breast accompanying deficient ovarian function and senile hypertrophy of prostate. We may cite another example namely,

an endemic goitre in which iodine is withheld from the thyroid for one reason or other.

Many have suggested that the enlargement is a result of chronic inflammatory changes. We find no evidence of such inflammatory changes when we examine the ordinary enlarged prostate.

Others have suggested that the enlargement is of the nature of an adenoma. There is no doubt that on section rounded nodules are seen which on microscopic examination show a glandular structure. The fact that these nodules can be shelled out is also an argument in favour of their being adenomata; but the age at which they occur (adenomata occur at a younger age) and the fact that these glandular structures have been shown to have ducts is against their being ordinary adenomata. Of the 123 cases in the author's series, 59 were Hindus, 31 Parsis, 14 Mohammedans, 9 Jews, 7 Christians, 1 Armenian and 4 Europeans. 48 cases were operated on—3 at one stage, none dying and 1 giving trouble in the bladder and 45 at two stages, 1 dying after cystotomy and 3 after prostatectomy. This cannot be taken as representative as my practice is mainly amongst Hindus and Parsis.

Others have stated that enlargement is more common amongst Mohammedans than amongst Hindus. It is also said that it is not so common in India as it is in Europe. Amongst the Chinese and Japanese the disease is very rare.

Whatever the cause may be we must study the effects of the enlargement. These arise mainly because of the situation of the prostate surrounding the first part of the urethra. The urethra is the part to suffer first. The prostate is contained in a fibrous sheath derived from the pelvic fascia. Apart from this the prostate has a capsule of its own but it is not as strong as the sheath.

The lateral lobes are the ones most often affected. Usually both are affected equally but sometimes one is much larger than the other. At times the middle lobe is the only one or the most affected. As the prostate gets bigger the urethra which is closely enveloped by it gets longer; it increases in sagittal diameter as well. It also gets compressed from side to side by the enlarging lateral lobes so that on section the urethra appears to be an antero-posterior slit whereas normally the anterior and posterior walls are opposed producing a transverse slit. If one lobe is more enlarged or is irregularly enlarged the urethra becomes correspondingly sinuous.

As the prostate enlarges it fills up the sheath. But with maintained pressure the sheath yields so that horizontal enlargement of the prostate occurs. A certain amount of pressure is maintained within the sheath just as it is in an inflated rubber balloon whose walls yield and yet there is pressure within the cavity. Below, the prostate by its apex rests against the urogenital diaphragm which is unyielding. The least resisting part is towards the base of the prostate *i.e.* in the bladder region and that is where the greatest growth occurs, and that is why the urethra is so much elongated in prostatics. I have seen a prostate which could be felt one inch above the symphisis. Here again things are not so easy. The ejaculatory ducts which enter the prostatic urethra about the middle of the posterior wall hold it down so that in marked enlargement there is an angle formed with its concavity forwards. A similar angle forms when the middle lobe enlarges.

The effect of this compression of the urethra and its sinuosity when it exists, is to diminish the force of the stream of urine, so that with marked enlargement the urine is not projected at all but falls down straight from the meatus.

Of all the explanations brought forward to explain the mechanism of micturition I like the one set forth by Young. He suggests that during micturition the internal sphincter does not passively relax and open out but is pulled open by the trigonal muscle which is attached to the ureteric orifices and to the ureteric bar and is inserted in the verumontanum in the posterior urethra. During micturition this muscle contracts and pulls open the relaxed internal sphincter. As the prostate enlarges the region of the internal sphincter gets less and less elastic, as a result of the presence of increased prostatic tissue. It therefore takes longer for the trigonal muscle to pull open the internal sphincter and allow the urine to flow through. This is in direct proportion to the amount of prostatic tissue present near the internal meatus. It can be easily understood that this difficulty will be most marked with a median lobe enlargement. This lag between the patient getting ready to pass urine and his actual production of the flow is called hesitation and is an early symptom of enlarged prostate.

One of the earliest symptoms of an enlarged prostate is a sensation of burning during micturition. In an elderly person, free from urethral discharge, burning micturition should arouse the suspicion of an enlarged prostate. This is probably due to the congestion of the mucous membrane.

As the prostate gets larger and larger it projects more and more into the bladder raising the internal meatus from the base of the bladder. This leads to the formation of a post-prostatic pouch. In fact this projection may be so marked as to overhang the ureteric bar. One can see therefore that as the prostate enlarges the trigonal muscle will act at greater and greater disadvantage so that not only is the hesitation increased but there will be a greater and greater difficulty in holding open the internal meatus till the bladder is completely emptied. This results in residual urine, a little at first, but steadily increasing as the prostate enlarges. With the acquisition of the residual urine the patient feels that his micturition has been incomplete.

The increased effort required by the bladder to force the urine through the compressed urethra leads to hypertrophy of the bladder musculature and in the later stages to the bulging of the mucosa between the hypertrophied muscular bundles (sacculation and trabeculation). As the residual urine increases there is dilatation of the bladder till one day as a result of some increased congestion of the prostate the bladder cannot force the urine through and there is retention. I have seen a bladder distended to more than midway between the umbilicus and the xyphisternum as a result of an enlarged prostate.

One of the early signs of enlarged prostate is frequency of micturition. At first this is a nocturnal frequency, particularly towards morning. The probable explanation of this is that the prostate is hyperæmic as a result of the changes that are occurring in it. It is a well known fact that the pelvic organs including the genitalia are congested towards morning as is manifested by the morning erection. This, superadded to the previously existing congestion of the prostate and posterior urethra lead to the desire for micturition. Later this frequency becomes diurnal as well and that is due to the increasing quantity of residual urine not allowing the bladder to completely empty. This frequency which may be as often as once every half hour disturbs the patient's sleep and materially helps to undermine his health.

As previously stated the bladder gets more and more dilated as the residual urine increases till finally as a result of some indiscretion or chill the prostate is more congested, the urethra is more pressed upon and the dilated and weakened bladder is unable to force the urine through and there is retention of urine.

Due partly to the increased vascularity but mainly due to the pressure of the newly formed tissue on the veins, the veins of the prostate dilate particularly in the area that is least supported, namely the bladder. These may dilate to the extent of being varicose. Such varices may rupture either spontaneously or as the result of instrumentation and lead to quite a serious hæmorrhage. It is a noteworthy fact that bleeding is more often associated with the nonmalignant enlargement of the prostate.

Whenever there is a quantity of residual urine, the bladder is more or less constantly under tension. This tension is transmitted back to the ureter and the pelvis and these dilate though the latter never so markedly as to deserve the name of hydronephrosis. These changes are bilateral. The back pressure causes interstitial nephritis and leads to deficient function of the kidneys. Deficient kidney function leads to accumulation of waste products in the blood and this to uræmia and finally to death.

We see thus, that a prostatic suffers first from a burning sensation during micturition with nocturnal frequency; next he develops hesitation and frequency and acquires a residual urine; next he gets attacks of retention, with a distended bladder in between and finally uræmia and death.

When a patient presents himself with the earlier of these signs or symptoms it is our business to find out whether he is suffering from an enlarged prostate.

This we do by questioning him regarding the history particularly along the lines a prostatic follows.

Next we do a physical examination. This examination consists mainly in finding out two things. (1) Is there enlargement of the prostate? (2) Is there residual urine?

It is always most convenient to find out about the residual urine first because unless the bladder is empty it is difficult to define the upper edge of the prostate. We determine the presence and quantity of residual urine by passing a catheter just after the patient has passed urine. Before the catheter is passed it is always necessary to examine the hypogastrium by palpation and percussion. If it is found that there is still a

distended bladder after micturition it is best to withhold the catheter till the patient is admitted to a hospital or nursing home because it is never safe to rapidly and completely empty the distended bladder in a prostatic. The sudden relief of tension is often followed by hæmorrhage from the kidney and sometimes by anuria and uræmia. Such a bladder should be gradually emptied by tying in a catheter and allowing it to drip at the rate of two drops a second. The bleeding is from the kidney and not from the bladder. Recently, I had a case of a ureteral stone impacted at the lower end. The ureter was dilated to the size of the small bowel. After the operation there was bleeding for some days. The wound in the ureter had been stitched up and there could have been no other source of bleeding but the kidney.

Having determined that there is no appreciable distention of the bladder, the catheter may be passed. It must be realised that there is more than the usual risk of infection of the bladder in prostatics because of the residual urine. Special precautions should be taken. The anterior urethra should be washed out with potassium permanganate solution 1: 2000. A stiffish rubber catheter, boiled for at least five minutes and well lubricated should be used. The rubber catheter is mentioned first because it can be sterilised with ease. I have found a mixture of liquid paraffin and vaseline of the consistency of thick honey to be the best lubricant. If this catheter does not pass, a boilable coude gumelastic catheter should be used. If this does not pass easily a Harricon stillette should be used after giving it the proper curve to stiffen the catheter. If this does not succeed the catheter may be assisted with a finger in the rectum. If this even fails, which is rare, a metal catheter should be used, assisted as before by a finger in the rectum. Usually the rubber catheter passes easily in the type of case we have mentioned, but all the manœuvres mentioned are necessary in some cases of retention.

Having passed the catheter the residual urine if any is withdrawn and measured. The catheter is then withdrawn after instilling 10 c.c.m. of a 10 per cent argyrol or an aqueous solution of acriflavine.

A rectal examination is next made. This is best done in the dorsal position. The finger should be well lubricated and the anus well smeared with vaseline. The finger should be more glided in than pushed in. The direction of the anal canal should be remembered. It is, as you know, directed from below upwards and forwards. The prostate should be felt. Its size, shape, consistency and mobility should be determined. For determining the mobility a bimanual examination is necessary. The upper limit should also be defined.

The usual type of enlarged prostate feels smooth and elastic and is moveable.

A hard nodule in the prostate may be either a prostatic calculus or malignancy. The latter is fixed. The former can be seen with x-rays.

A chronic prostatitis is usually hardish all over and is tender. There is a history of infection and there are threads in the urine.

A tuberculous prostate is nodular and usually associated with thickened vesicles and there is often epididymitis. The micturition is painful and T. B. are found in the urine.

There is one lesion which simulates enlarged prostate and that is a nervous lesion. In all cases of suspected enlarged prostate a Rhomberg test should always be done and the knee jerks tested. A cystoscopy presents a typical picture in these cases, the trabeculæ being delicate and long whereas in an enlarged prostate they are coarse and short.

I do not do a cystoscopy in every case. It is an unnecessary instrumentation. In cases where the enlargement does not explain all the symptoms and in cases where there is pus in the urine, I always do it.

Having made sure that the patient is suffering from an enlarged prostate the next thing to determine is what to do about it. Enlarged prostate is a progressive disease but its rate of progress varies tremendously. In some, matters come to a head within a few years and in others the history may extend over twenty years or more. In some, mild symptoms like hesitation and a little frequency go on for years; in others the first symptom is either hæmorrhage or retention. Practically all the cases that have come to me have come either during an attack of retention or after one or more attacks of retention.

Our main keynote is the removal of the mechanical obstruction to the flow of urine. The one and only certain method of removal of this mechanical obstruction is to remove the enlargement in the prostate. All other means are palliative.

We will consider the latter first. As one of the manifestations is the inability of the bladder to completely empty itself, drugs like strychnine, ergot etc.

with a stimulant action on muscle were used without any effect. Cathartics and warm enemata were used with the idea of diminishing congestion with only a mild temporary benefit. Belladonna and atropine were also tried without effect. Massage of the prostate by the squeezing out of the secretion in the dilated prostatic alveoli gave only a very temporary relief. Vasectomy or a Steinach's operation was tried. These by increasing the testicular hormone certainly caused improvement for a short time.

When testovirone was isolated and later synthetised, it was tried in cases of enlarged prostate. There is no doubt that such administration slows down the progress of the disease and staves off retention in the earlier type of case. Once retention has been established it does not prevent further attacks. There is evidently something more necessary than just the testovirone to have a more profound and permanent effect on the diseased prostate. The dose of the testovirone must be large, twenty-five mgm. twice a week to obtain even the effect mentioned above.

Sclerosing solutions have been injected into the prostate with the only result that the removal has been rendered more difficult. Diathermy and other high frequency currents have been tried also without any success except the most fleeting relief and that probably due to slight reduction in congestion.

It must not be forgotten that even though the enlargement of the prostate is progressive yet the aggravation of its symptoms is due to attacks of congestion. When these attacks of congestion pass off the patient feels a comparative relief. If any medicine or particular form of treatment has been adopted during the attack that treatment gets undeserved credit and we must guard against that.

Deep x-rays and radium certainly have an effect on the enlargement leading to its shrinking but never to its original size. If correct doses have been adopted there is a relief in the symptoms which may last from six months to a year. By the end of that time the prostate has usually enlarged to its original size, if not more, and the symptoms are reproduced. A further course again causes amelioration but not to the degree obtained on the first occasion. Of the two, I prefer the x-rays and I have had patients who were unfit for operation having treatment with x-rays for three or four years. It certainly helped to prolong their lives.

The obstruction produced by the prostate was attempted to be sidetracked, before a proper operative procedure was developed, by means of what was called "catheter life". Rubber or gumelastic catheters were passed once, twice or three times a day. Moreover the patient was taught how to catheterise himself. If we look at the statistics of those days we find that the entering into the catheter life was the most dangerous period. As many as 50 per cent were dead within the first six months and those who survived this period carried on for many years. When I was a house-surgeon at St. Peter's Hospital, London, I remember a prostatic who had been using the catheter for six years. He used to carry the rubber catheter in a glass tube and his urine was perfectly clear! The great danger of catheterisation is sepsis and once sepsis is introduced the life of the patient is made miserable, what with the markedly increased frequency and the pain and straining at the end of micturition. Apart from this, infection spreads up to the kidney leading to a typical surgical kidney with fever and rigors. All these hasten the end. We must, therefore, be extremely careful whenever we order or do an instrumentation in a prostatic. It is my invariable rule to order a urinary antiseptic straight away and to wash out the bladder after the catheterisation with potassium permanganate 1 : 2000. After the washing has been completed and that is only when the permanganate returns unaltered in colour either argyrol 10 per cent or 1 per cent aqueous solution of acriflavine 10 c.c. is instilled and the catheter withdrawn. I do not recommend catheter life.

The question finally comes to operation. As previously stated the only certain cure is the removal of the enlargement in the prostate. This, however, cannot be done indiscriminately. Otherwise the mortality may be appalling.

First and foremost we have to study the general condition of the patient. His nutrition, colour, tongue have to be seen. A dry brown tongue is an absolute contra-indication to immediate operation. We must ask about the appetite, vomiting, constipation, headache and sleep. If these are favourable we can take it that there are no clinical manifestations of uræmia.

We should examine the blood in a routine way for colour index and for clotting time. If the colour index is low suitable medicines or injections should be prescribed or if matters are urgent or the index or R. B. C. count very low, a blood transfusion may be given. The clotting time is important as I once nearly lost a case by bleeding for lack of this precuation.

The kidney function should next be tested. The best way is by the urea clearance test. But if the means for this are not available the ordinary urea concentration or urine dilution test may do. The kidney function may also be tested colorimetrically using phenol red.

If the kidneys show 50 per cent or more function we may go ahead straight away, if between 40 and 50 per cent a two stage operation is indicated whereas, if below 40 per cent some preliminary drainage is necessary.

Amongst the drainage measures are a tied-in catheter or a decompression through a small suprapubic incision. In all cases of retention or marked distention the bladder must first be emptied by dripping with a tied-in catheter. The decompression operation is a simple procedure and may be carried out at a pinch through a large trocar and canula though the special Kidd's trocar is very useful. In cases with a dry tongue such preliminary drainage is always necessary.

With attention to the bowels and free diuresis by ingestion of large quantities of fluid combined with drainage, it is wonderful how rapidly some cases improve. I demand from my patients one hundred ozs. of urine in twenty-four hours. Some of them produce as much as 150 ozs.

Suprapubic cystotomy may be done as a preliminary in the second class of cases or as a permanent measure.

In doing a suprapubic any stones present are removed. In a prostatic, vesical calculus is more silent because it gets the protection of the postprostatic pouch. Sometimes one comes across hundreds of seed calculi. Any diverticula should be explored at the same time. These are usually associated with pus in the urine and their presence has usually been discovered during the cystoscopy. If the patient can stand it the diverticulum should be dealt with now. Any how it should always be dealt with before the prostatectomy otherwise it leads to septic infection and often to a persistent suprapubic fistula. I do not fix the bladder to the abdominal wall except in cases where a permanent fistula is intended. The cave of Retzius is always drained by a gauze-strip. Use a rubber tube at least ¾" in internal diameter. The lower end should not press on the trigone. In those cases where a permanent fistula is intended the drainage tube may be smaller, and is replaced by a self-retaining catheter within 10-14 days according to the progress of the case. After transference to the bed I use a simple suction apparatus to keep the patient dry.

The prostatectomy may be primary or secondary; primary only when the patient's condition guarantees it; secondary when the patient's kidney function has improved as a result of preliminary cystotomy. I always use the suprapubic method. I start enucleation on the vesical aspect close to the internal meatus. I do not attempt to peel off the urethra. I should think that it will always slough. After removal of the prostate I see that the eyes of the catheter are in the prostatic cavity and then irrigate with fluid at 115° F. If that is not enough to check the bleeding I irrigate with 1 : 4000 silver nitrate. If bleeding still continues I either pack with gauze round the catheter or use a Pilcher bag. Tilting the foot end of the bed up helps. The patient is irrigated with H_2O_2, one volume morning and evening. The ¾" tube is removed on the fourth or fifth day and a smaller one put in; this is changed on the eighth day and a quarter inch tube is put in; this is finally removed on the fourteenth-eighteenth day when the wound is allowed to heal. If not healed by the twenty-fifth day I tie in a catheter taking care to see that it drains well. It is very rarely that the suprapubic sinus needs scraping or cauterising. The patient is allowed up on the twenty-first day.

The mortality of secondary prostatectomy is about 8 per cent while that of primary is about 5 per cent. In all doubtful cases I do the two stage operation.

Late complications are narrowed internal meatus of which I had one case. I used to start enucleation at the internal meatus in those days. Since starting on the vesical side I have no further trouble of this kind.

Difficult fistulæ is another trouble. The patient should be allowed up; this helps to close these fistulæ. I had a case which troubled me for four months but ultimately healed after scraping and suture, together with a tied-in catheter.

In secondary cases the interval between cystotomy and prostatectomy should not be more than 2-3 weeks. After that period there is a lot of fibrous tissue formed and the finger cannot get at the prostate so easily. In all such cases the old scar should be excised and the peritoneum defined and dissected up. In one case where I did not take this precaution the peri-

toneum was torn during prostatectomy. Fortunately nothing more serious than a localised peritonitis followed.

Of all the prostatectomies the toughest is the enucleation of a fibrous prostate. I remember once after struggling for an hour and a half I produced a miniature prostate 1"×¾". I now use the Maccarthy's transurethral resectome for these cases with most satisfactory results. In the ordinary prostate I found it not so useful. Spouting vessels obscure the field and on all the occasions that I have tried it, I have had to give up before anything approaching complete resection could be done.

Ladies and Gentlemen, I thank you for having given me a patient hearing and I do hope that those of you who are general practitioners will have realised that nothing short of removal cures an enlarged prostate and that if done early the risks are small and the convalescence short.*

* Read at the Scientific Section, XVIII All-India Medical Conference, Hyderabad, Dn., Dec. 1941.

INTRADERMAL TEST FOR VITAMIN C IN A CASE OF SCURVY

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Recently we had an opportunity of performing the intradermal test for vitamin C in a case of scurvy before and during treatment with Redoxon (Roche). The test was carried out using 2-6 dichlorophenol indophenol solution. The technique followed in the preparation of solution and performance of the test was indicated in our previous paper. (1941).

A Hindu female child (J.R.) aged 3 years was admitted in King George Hospital on 15-7-1941 for painful and swollen knee joints and legs, spongy and profusely bleeding gums and intermittent fever since 3 months. The child was never able to walk. X-ray showed irregular and wide epiphyseal lines at the lower ends of both femurs. The decolorisation time before the commencement of treatment was 14½ minutes and treatment for 8 days with a daily dose of 2 c.c. of Redoxon subcutaneously brought down the decolorisation time to 4 minutes (*vide* table.)

Date.	Redoxon.	Decolorisation time.	Progress of case.
18-7-41	2 c.c. (after test)	14½ min.	
19th.	2 c.c. „	—	
20th.	2 c.c. „	7½ „	General condition better: bleeding decreased: swellings and pains reduced.
21st.	2 c.c. „	—	
22nd.	2 c.c. „	5½ „	Bleeding stopped completely.
23rd.	—	—	
24th.	2 c.c. „	4 „	
25th.	2 c.c. „	—	
26th.	—	4 min.	Patient discharged completely relieved of symptoms of scurvey.

The intradermal test was carried out with a view to find out if the decolorisation time was definitely prolonged in a case of clinical scurvy and to see whether treatment with vitamin C will bring about proportionate shortening in decolorisation time, along with improvement in the patient's clinical condition. In our investigations on intradermal test among children of Vizagapatam we noted the following:

Class of children.	Vitamin C intake.	Average test-time.	Longest time in the series.
Middle class society.	Low.	8'—12"	11'—30"
Poor class society.	Very poor	10'—20"	14'—30"
	Rich	6'—16"	8'—10"

According to Rotter's standards (1937) with which we are inclined to agree from our previous observations, a test-time of 14½ minutes is definitely indicative of hypovitaminosis-C. The present case of scurvy with frank scorbutic symptoms showed a decolorisation time of only 14½ minutes, contrary to an expectation of much longer time. But during treatment with Redoxon the gradual and pronounced decrease in the test-time was synchronous with the improvement in the scorbutic symptoms and was only 4 minutes when the child was discharged free of scurvy. The case could not be followed and further experiments could not be done on the child. How far a particular test-time can be taken as a definite critical point between hypovitaminosis and frank clinical scurvy and whether the condition of scurvy can be precipitated at any degree of hypovitaminosis depending on other factors in the subject's health, can be elucidated only by similar investigations on a large number of cases of scurvy and also by experiments on animals put on scorbutic diet till scurvy develops. A series of intradermal tests carried out during an experiment, similar

to that which Crandon (1940) performed on himself, would be of immense help to evaluate the test in relation to human nutrition. The readings obtained in the present case further support the view that test-times longer than 10 minutes are indicative of hypo-vitaminosis of various degrees.

Our thanks are due to Dr. C. K. Prasada Rao, M.D., who brought this case to our notice and gave us facilities for carrying out the test.

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THE PRINCIPLES OF FRACTURE TREATMENT.

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INTRODUCTION

No one can begin a talk on the principles of fracture treatment without a reference to those pioneers of orthopædic surgery who by their unstinted efforts made possible the healing of the halt and lame.

The one, Hugh Owen Thomas, whose name has been brought down to us by a monument of his own making the Thomas splint—was the teacher and uncle of the other, Sir Robert Jones, the worthy disciple. They are of those whose memory cannot die, whose influence lives after them, whose gifts to humanity can be perpetuated and multiplied by their faithful disciples. It is good for us to remember the High priests of our Brotherhood, for it brings us to the greater side of this glorious thing we call our Profession—this sworn devotion to the Healing Art in the service of Humanity, the Hippocratic Oath which binds us all as priests of the Temple of Aesculapius.

I say it is good, therefore, that we remember these high priests whose example and teaching we are in duty bound to follow.

Hugh Owen Thomas,—a name laden with world renown,—belonged to a small delicate man of 5'4", with bright, intensely intelligent eyes, a penetrating regard, and the acutest power of observation. Hugh Owen was the son of Evans Thomas—a Liverpool bone setter and last of a long line of seven bone setters, believed to be endowed with special gifts of healing, but all entirely without medical education.

His ceaseless activity was his reputation in Liverpool, where, after studying medicine at Edinburgh, he set up in practice in 1857. An inventive brain and a remarkable mechanical intuition led him to the invention of his splints. Entirely without guile he was always ready to show and teach his methods to anyone who paid him the compliment of listening.

His splints were originally invented for the treatment of tuberculous joints. Their use as fracture apparatus came later. Like a great prophet he ceaselessly preached his doctrine of prolonged and uninterrupted rest. In those days of routine excision of such joints he taught rest and non-interference, so began the now universal conservative surgery of tuberculosis.

He made his own splints; he preached and demonstrated his doctrine of prolonged rest and immobilisation, alike for diseased joints and for fractures; his splints were invented to allow of this principle being put into effect whole, at the same time allowing the patient that necessary functional activity which is so often forgotten, today, when a Thomas' splint is applied.

The disciple of this man Thomas was his own nephew. He came to him direct from his medical school, and from the master he learnt his work. No lesser man than Thomas was the disciple, for in the course of time he matured into a full mastership of his craft, which under the charm of his powerful and skilled hands, and by his personal indefatiguable effort gave us the science of orthopædic surgery. Recently it has become the custom to speak of Fracture Surgery as if it was a science of its own. This is an illusion, for it is but a small department requiring a primary and vast experience of the mother science.

Robert Jones became the acknowledged Father of Orthopædic Surgery throughout the world. Through the medium of the 1914-1918 world war, and the congregation of surgeons on and around the battle fields consequent upon that conflagration, the principles of this young branch of surgery were spread, the world's master surgeons being taught by the High Priest himself.

What were these principles? Were they a new discovery? To answer the last question first: There is very little new in this world, it is only we who are ignorant, and, in our great ignorance puff ourselves up with pride, when we have rediscovered some old and much used wisdom of Nature. So with these principles,—they are not new. 3000 years before Christ

the Egyptians treated fractures along "modern" lines using bandages with plaster of Paris.

There is one golden principle in the treatment of a wound of any tissues, *viz.*, perfect rest of the affected part, at the same time maintaining the function of the whole.

We shall see how bone conforms to this general law of healing.

In order to understand and enunciate the principles of treatment of fractures it is essential only to review our knowledge of the healing of bone. All the facts required for us to state these principles are to be found in the study of the condition governing the healing and growth of bone.

Bone, above all else, is a special form of connective tissue. Special only in that interwoven intimately into its cellular substance is a very delicately balanced physiochemical equilibrium of calcium and phosphate ions.

A fracture, therefore, is only a wound of connective tissue, and its repair will be by cellular growth of the same nature, in its general essentials, as that which characterises repair in all living tissues. It is clear, then, that the biological laws to which repair of all tissues conform are of the greatest importance in considering repair in bone. On our knowledge of these laws will depend any principle of treatment we may formulate. A thorough understanding of these laws is of greater fundamental importance for success in fracture work than any knowledge of the mechanics of splints. In other words we must seek for our principles in the field of physiology.

Let us take each step slowly and consider it, beginning with the histology concerned in the repair of a fracture.

Histological Features

Repair by granulation tissue—The histological picture of a healing fracture in its early stage resembles that of any traumatic or inflammatory exudate undergoing organisation. The fluid lying between the bone-ends, under the periosteum and in the tissues around is blood,—a hæmatoma. This partly clots. Along the fibrin strands, so formed, rapidly advances a loose form of fibrous tissue of the cellular granulation type. This is hyperæmic, being full of, and formed by, engorged dilated capillaries. These layers of granulation tissue grow out from each of the broken ends and completely resorb the hæmatoma. If the fragments are immobilised in apposition both layers meet and unite.

Repair by primary callus—Now fibrous trabeculæ in the marrow cavity begin to be formed into early bone and almost fill up the marrow cavity. The first stage of callus comes from the endosteum. A similar formation occurs beneath the periosteum where it has been stripped up. These bony trabeculæ now invade the granulation tissue between the bone ends. Intermixed with this early bone formation is a good deal of cartilaginous tissue. The earlier hyperæmia now gradually disappears, and, as it disappears an increasing amount of calcification occurs. This rapid growth of a tumour-like mass of calcified cartilage, irregular bone and fibrous trabeculæ, marks the end of the first stage of callus formation.

Final consolidation—At this stage the final structural arrangement begins to show signs of appearing. Lamellæ of bone appear in the rather irregular mass of mixed tissue. These lie in the lines of stress and strain.

Under the periosteum resorption of the outgrowth of new bone takes place. In the marrow cavity resorption also takes place leading to tubulation and a reappearance of the fat and marrow cells usual to that space.

Usually, in about 12 months, the whole process may be so complete and perfectly carried out that the site of its occurrence cannot be determined, even histologically.

Biochemical Considerations

These histological changes must represent some very vast and remarkable chemical processes. What are these briefly? They are concerned mainly with the deposit and taking up of calcium, and the amount of that mineral available.

If the hæmatoma of a fracture be aspirated during the first week, and the fluid obtained analysed, it is found to contain a greatly increased amount of calcium and phosphates. An x-ray taken at the same time shows a decrease in density of the fractured bone ends. The calcium and phosphorus are apparently obtained from these bone ends. How then does this decalcification come about? There are two factors: The torn tissues liberate histamine and acetyl-choline. These substances paralyse the capillaries and so account for the local hyperæmia. Bone always reacts to adjacent hyperæmia by decalcification.

Next, during the first fourteen days, the hæmatoma shows a marked acid tide. After fourteen days the pH swings over to the alkaline side of normal.

Now provided that the hæmatoma is not dispersed by operation or the introduction of metal plates, or

screws, which have their own independent electrochemical reactions, there is present a hæmatoma, supersaturated by calcium, invaded by granulation tissue and with pH well on the acid side of normal.

During the third and following weeks there is found the histological evidence already mentioned of calcification and bone formation known as callus. At the same time there is found a concentration of the enzyme phosphatase to twice normal values. Phosphatase is an active enzyme secreted by proliferating cartilage and osteoblastic cells and always found where bone formation is most active. It hydrolyses phosphoric esters and increases the concentration of phosphate ions so that the solubility of calcium phosphate is exceeded, and the salt is deposited. The raised phosphatase concentration persists until the third or fourth month, the time when union of the fracture is usually complete, and then subsides to the normal level.

Pathological Considerations

Hyperæmia of bone is always associated with decalcification, ischæmia with sclerosis. In osteomyelitis there is decalcification just so long as there is active infection and hyperæmia. When this subsides, and hyperæmia with it, there is recalcification of the bone. Finally, as in all tissues the stage of repair by fibrous tissue sets in. In bone this final repair is also essentially by fibrosis, but with a dense deposit of calcium in the close interstices of the scar, and hence the term sclerosis applied to the ultimate appearance of such a healed, wounded bone.

Such decalcification is seen to a similar extent even when natural infection of the bone has not occurred, *e.g.*, a septic finger, or in tonsillar infections which cause a hyperæmic decalcification of the atlas to such an extent that the transverse ligament loses its hold on the odontoid process of the axis, allowing dislocation of the atlas on the axis.

Similarly an injury to bone, or even a simple contusion, may cause decalcification by the traumatic hyperæmia set up. The same explanation accounts for the decalcification of bone occurring after a sprain.

In the case of a fracture which has been perfectly immobilised this hyperæmia lasts 10-14 days. If, however, the fragments are not immobilised sufficiently, the constant shearing and twisting strains tear the young granulation tissue, thus causing a series of small traumata, and with the trauma must come hyperæmia. This in its turn causes more and more decalcification, hence what was a crack becomes a cavity, a linear facture becomes a gap fracture.

This is the explanation of those cases which, x-rayed immediately after injury show no fracture, yet, after a month in a sling or with a bandage and Goulard's lotion, are still complaining of pain and swelling of the part. A further x-ray shows an obvious fracture; on re-examining the original radiogram a fine hair line fracture may be seen, which previously escaped attention.

If, at any stage, the fragments are perfectly immobilised, then decalcification at once ceases, recalcification commences and the fracture will heal. If shearing movements are allowed to continue indefinitely, fibrous tissue is laid down parallel with the fractured surfaces and there is no continuity of the fragments. It is a law of tissue growth that it grows in lines of stress and parallel to lines of shearing strain. The law holds good in the case of bone. Healing by scar or fibrosis will always take place if nature can effect it, and hence in this case the recalcification and sclerosis occur not in continuity with the fragments but across their ends and non-union is established.

From the foregoing remarks we can easly construct for ourselves what will happen in a compound infected fracture. The amount of hyperæmia resultant on the infection will cause a great amount of decalcification; this will not be repaired until the infection has been eliminated. Hence the early stages of repair may be very protracted. Only after perhaps months of struggle to overcome the infection will the fracture be in the state an ordinary simple immobilised uninfected fracture would be in, ten days after the injury.

In the case of the infected fracture there may be wide gaps in the bone following these months of hyperæmia. These have to be filled in by granulation tissue and recalcified. This process will obviously take longer than the corresponding process in an uninfected fracture. Absolute immobilisation is even more necessary here, if that is possible, but under its influence even infected fractures usually unite finally by bone.

Rate of Repair of Fractures

In an ordinary average uncomplicated fracture there is continuity of granulation tissue in a few weeks, repair by ordinary primary callus in about two months, and consolidation of bone in three or four months.

Many factors modify this average rate of growth and repair. The power of growth is geater in an

infant than in an adolescent and in the latter than in the adult and aged. A fractured femur in a day old infant will probably unite in one month; in a 15 year old youth, in two months, and in a 50 year old adult, in four months.

The various conditions of malnutrition, cachexia, etc., all retard repair. The type of fracture has some influence, the oblique unite more quickly and firmly than the transverse. Impacted fractures unite quicker than gap fractures. Even in patients of similar age, nutrition, with similar injuries, there are wide variations in the rate of repair. To believe that repair is necessarily abnormal because it is slower than the average is a fundamental mistake; a fracture cannot be called a case of non-union merely because it does not heal within an average number of weeks or months. Its progress may be quite normal although slow.

Vascularity and Repair

Rate of repair depends almost directly upon the vascularity of the fragments. The rapid formation of the granulation tissue upon which the repair of any fracture depends, requires a very free blood supply for the first 8-10 days at least.

The blood supply of normal bone is derived not only from the main nutrient vessels but from many other vessels entering the cortex through capsules, ligamentous and tendinous attachments. At the end of the long bones in the region of the synovial reflections and joint capsules, there are scores of vascular foramina. Through these pass arteries and veins. In children this metaphysial area is more richly supplied with blood than any other region. In adults we know that fractures in these regions unite very rapidly and firmly, *e.g.,* neck of the humerus, supra-condylar fracture of the femur, etc. Non-union is of the greatest rarity in these parts.

On the other hand the lower third of the shaft of the tibia and the humerus are devoid of these foramina and depend mainly on the nutrient artery for their supply. Fractures in these regions will cut off the lower fragment from its blood supply, and, as we know, this is one of the common sites for non-union to occur. The formation of callus is slow. At operation in such cases the proximal fragment is seen to bleed freely, the distal one hardly at all.

A striking example of this relationship of rate of union and vascularity is seen in a case of double fracture of the lower end of the tibia, whose union occurred first at the junction of the proximal and middle fragments in five months. After eleven months of immobilisation the lower fragments were just showing signs of commencing union.

If the blood supply is completely cut off from one fragment, for example, in fractures of the carpal scaphoid and certain fractures of the neck of the femur, the piece becomes avascular and undergoes slow necrosis. In the x-ray it is seen as a denser fragment.

A certain blood supply reaches the cortical bone through the medium of the muscle attachments of the periosteum. If this membrane is stripped up at these points, either accidentally, or by operation, a further source of blood supply is cut off from the bone.

Non-union

We have seen clearly that in order for healing of a wound of bone to take place, the ordinary requirements for healing in any tissue must be present until healing is complete. These conditions are perfect rest and a good blood supply. No one of us would dream of allowing a patient with a muscle wound to move the affected part until the wound was healed; we all know too well the consequences of lack of blood supply to the part. For some reason it is not fully enough appreciated that the same conditions as apply to any other tissues, apply to bone; if anything, they apply even more strictly.

Throughout the foregoing physiological review of the process of healing in bone we have seen how the bone ends must be kept in contact, and at rest continuously, and how the least disturbance of these conditions results in tearing of the young granulation with resulting hyperæmia and further decalcification, and so a delay in the occurrence of union. We have only to use these physiological indications in order to formulate the one great principle of treatment in fractures: *"Every fracture must be completely immobilised without interruption until the fracture is firmly united."*

Often another "principle" is given in text books, before this one:—*i.e.,* "Displacement of fragments must be corrected to a position of apposition "and anatomical alignment." Yet, how obvious it is that the surgeon who attempted to treat a fracture without first obtaining apposition of the fragments, and anatomical restoration of the part, would be nothing short of a fool? So that this is not really a principle in the sense of the first one

we have enunciated, it is a necessary preliminary to the application of the principle laid down.

In our consideration of the physiology we have noted that the rate of healing depends upon some inherent constitutional factor as well as an adequate blood supply to the part; and that given the blood supply in the proportion required, there is still a wide variation between individual times of union, due perhaps to the exercise of this unknown constitutional factor. Now many textbooks lay down, to the eternal confusion of the student and practitioner, that such and such a fracture will be united in such and such a time. This is a loose statement copied from one book to another, and has little meaning except as average minimums.

It is quite clear from our knowledge of what goes on during healing, and the factors affecting the rate of union, that the only period that can be fixed is the minimum period of absolute immobilisation. But under no circumstances must immobilisation be disturbed before firm union has occurred. Do not forget that during our studies we found that complete union took about twelve months! But union is sufficiently sound, long before this period has elapsed, to allow of unsupported functional activity.

In general, fractures in children unite quicker than in adults; those in the upper limb may be left unguarded earlier than those of the weight-bearing lower limb.

To return for a moment to the question of reduction of the displacement of a fracture. Some authorities lay down dogmatically that "Perfect anatomical reduction must be obtained." A very admirable technical ambition, but it leaves out of the picture the ultimate aim of treatment in any fracture: *i.e.,* "a return to perfect functional activity."—Not only must the limb look normal, but it must function normally. This conception of the ultimate aim of treatment is intimately bound up with the law of fracture treatment we have formulated, but is not quite so obvious and is very frequently lost sight of by the occasional fracture surgeon.

What conditions do we require to establish in order to ensure an ultimate pefect functional result?

Firstly, the reduction must be as perfect as possible. This will require radiograms of good quality in antero-posterior and lateral positions, before and after reduction, perfect anæsthesia, either local, regional or general; the accurate application of a clear knowledge of the functional anatomy of the part to the act of manipulation and reduction.

Secondly, this anatomical reduction once obtained must be maintained strictly for as long as may be necessary for union of the bone wound to occur. In order to carry out this, some means of perfectly rigid immobilisation must be employed—recently plaster of Paris has come into fashion very much. Next, it is obvious after a little thought that in order to prevent shearing and twisting movements, the immobilising agent must include the joint immediately above and the one immediately below the site of fracture, at least.

Thirdly, if function is to be normal after such a long period of immobilisation, the patient as a whole must be actively exercised; his body must be kept at a good standard of training. As important is the condition of the immobilised part. The tone of these muscles must be maintained if wasting is to be avoided.

Maintenance of tone and exercise will ensure an adequate blood supply to the bone and other parts affected and so fulfil a further essential requirement for healing of a wound of bone.

It is found that if the immobilised part is actively used throughout the period of healing, encased in the plaster, muscles do not waste; joint adhesions do not occur; swelling and œdema of the part do not occur, and if these were present at the start, they will disappear under active exercise.

On the other hand experience with massage and passive movement is a tale of chronic disability ending finally in complete disablement, very often after a short period of seemingly satisfactory progress.

Passive movements and stretching not only cause unnecessary pain, but result in exactly the opposite effect to that which is sought. It injures the joints, tears the capsules, increases exudate and trauma, and in consequence, causes hyperæmia and finally, therefore, must increase the adhesions. If stiffness of a part is threatening or present, then passive exercise and massage is the one way to make that stiffness permanent.

Thus we come back to our original thesis that for perfect healing of a wounded tissue to occur absolute rest of the wound is required. That bone is no exception to this general law of Nature, although it might appear to be so, from a consideration of the complexity of apparatus, and the conflict of technical opinion extant on the question of how best to apply this general law.

Every fracture must be completely immobilised in perfect position until healing is sound; Functional re-

habilitation must take place during this period of immobilisation; the aim of all treatment is a return to normal functional activity as quickly and smoothly as possible. This, the one object of any effort to heal by any doctor is only too frequently lost sight of in the concentration upon the local condition and the technical detail of some fascinating mechanical aid towards the attainment of this final return to full function.*

* Read at the opening meeting of the Cuttack Branch of the I. M. A. in 1940. Major Andreasen was at that time Surgeon-Superintendent of the Cuttack Medical School.

A CASE OF CHRONIC GOUT WITH MACROCYTIC ANAEMIA

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H. S., 22 years, Hindu, male, cultivator, vegetarian, resident of Kashipur, district Nainital admitted on 3rd March, 1941 in K. G. Hospital, with the complaints of (1) pain and swelling in the left great toe, both the ankle joints, wrist joints, right little finger off and on for 4 years, (2) palpitation off and on for 4 years, (3) occasional epistaxis since childhood, (4) diminution of vision especially of the left eye for 1 year.

Family history—Father was a subject of chronic eczema (allergic condition). Uncle died of pain and swelling in the joints (gout?).

Habits—Active habits as a cultivator. No history of chronic alcoholism could be elicited. He, however, on putting direct question admitted of having some fermented drink for a few days before this illness.

History of present illness—While coming back from the fields one afternoon about 4 years back he suddenly developed pain in the metatarsophalangeal joint of the left great toe. He thought it to be sprain and fomented and massaged it without any relief. But during the night the joint became swollen, hot and tender and the patient had to lie in bed for 2½ months. This was accompanied by fever of irregular type which used to increase off and on with the swelling and pain. After this period the pain disappeared but the swelling of the joint and hardness persisted. Then suddenly one day after about 6 months he developed swelling of both the ankles with excruciating pain on the posterior aspect of the joints accompanied by fever. After 2 months the pain disappeared and he was well for three months, though the swelling persisted. Then again he developed pain and swelling of the right knee joint lasting for 15 days followed by the swelling of the left knee joint lasting for 10 days associated with mild pyrexia. During these attacks he used to get frequency and burning in micturition and was constipated. Again after a period of quiescence of 6 months he got pain and swelling in the right little finger and pain in the right forearm and then pain and swelling appeared in the carpal joints of the left hand. He had been getting such attacks off and on with increasing frequency. He was getting attacks of epistaxis off and on in between the intervals of these joint pains.

Present condition—Young man of thin build, slightly anæmic, nails showed early parrot-beaking. Left ear showed a small whitish nodule of the size of small pea fixed to the cartilage of ante-helix, and 2 such nodules (tophi) on the helix of right ear. Local examination of the joints: Lower Limbs—left first metatarsophalangeal joint—swollen (about the size of a duck's egg) spindle shaped, bony hard, nodular and fixed; left fifth metatarsophalangeal joint showed a swelling (about the size of a piegon's egg), tender, and with limited movements; proximal interphalangeal joint of second right toe was spindle shaped, tender movements practically absent. Right ankle joint—Much swollen all round but swelling was most prominent on either side of the tendo Achillis, was soft and tender (bursitis). Left ankle joint—well marked swelling present on either side of the tendo Achillis. Knee joints—no apparent abnormality except painful movements. Desquamation of the skin of the thighs was noted. Upper limb—right little finger—both interphalangeal joints swollen, spindle-shaped, soft to feel, tender, movements limited, pain and tenderness in the head of the ulna and epicondyles of the right humerus; left fifth metacarpophalangeal joint swollen, but the pain and tenderness are present in all the small joints of the left hand. Spine of the scapulæ was tender on both sides. Pain and tenderness in the vertebra prominens and lumbo-sacral region. Circulatory system—Heart left border in the nipple line, soft systolic murmurs in mitral and pulmonary areas (hæmic), pulse—70 per minute, arteries not thickened, blood pressure 130/80. Alimentary system—Gums spongy, spleen palpable. Respiratory and nervous system showed nothing abnormal.

Investigations—X-ray report—The head of the first metatarsal showed a marked area of rarefaction. The

base of the proximal phalanx showed punched out areas. Blood uric acid—4 mgm per cent (Normal 1 to 3 mgm %). Urine examination showed nothing abnormal except low specific gravity (1008). Microscopic examination of the contents removed from the tophi on ears showed typical acicular crystals resembling those of urates.

Blood examination showed macrocytic hyperchromic anæmia (total R.B.C. 1·4 million/c.mm., hæmoglobin—37 per cent; colour index 1·32; general blood picture showed anisocytosis and poikilocytosis with marked preponderence of macrocytes). Total W.B.C. 7040/cmm. Differential W.B.C.—polymorphs 67 per cent, lymphocytes, 31 per cent. eosinophils 2 per cent. Wassermann reaction in blood —completely negative. Stool—cysts of E. Coli in small number, no other abnormality. Van den Bergh reaction—negative. Icteric index—3 Units. Reticulocyte count—0·1 per cent. Bleeding time—1 min. 50 seconds. Coagulation time—2 min. 45 seconds. Blood platelet count—2,400,00/cmm. Gastric analysis—slight hyperchlorhydria. Blood urea—50 mgm per cent. Urea conc. test—0·8 per cent. Other investigations—Eyes—tension normal, media clear & fundi normal. Refractive error was the cause of diminished vision. Nose—the patient was getting profuse epistaxis very frequently during his stay in the hospital. On examination a bleeding point was detected on the septum which was cauterised twice with temporary benefit. He was given calcium gluconate 10 per cent., 10 c.c. daily for 2 weeks, calcium lactate grs 30, thrice a day, adrenalin pack and nasal wash with cold alum lotion with little relief. Ultimately the epistaxis was controlled by liquor ferri perchlor packing.

Treatment and Progress of the Case

Treatment and progress of the patient—(1) Rest in bed. (2) Diet—chapaties, dal, green vegetables together with eggs 2, fresh lemons 4, oranges 2, tomato 2 ch., butter 1 ch., milk 1 seer. (3) For anæmia—(*a*) Erythrogen 2½ c.c., intramuscularly daily for 20 days, and then on alternate days for 20 days and then twice a week. (*b*) Fresh liver juice daily.

(*c*) Ferri et ammon citras .. .. gr xxx
Tr. nux vomica .. .. m v
Tr. cinchona co. .. .. m xv
Glycerine .. .. m xxx
Aqua .. .. ad oz. i
T.D.S., P.C.

After 6 weeks treatment, the blood picture greatly improved (total R.B.C. 2·34 million/cmm., hæmoglobin 50 per cent., (7·5 grams), general blood picture—slight anisocytosis and some macrocytes, no nucleated R.B.C.)

Local treatment for the painful and inflamed joints during acute exacerbations—(1) Glycerine belladonna paint, gauze and bandage—afforded little relief.

(2) R/
Liq. plumbi subacetatis .. m v
Tr. opii. .. .. m xv
Aqua distillata .. .. ad oz i
Mft. lotion

Soaked with lint and applied to the painful joints, gave great relief.

(3) R/
Soda bicarb .. .. gr xv
Linimenti belladonnæ .. dr. ii
Tr. opii .. .. m xv
Aqua distillata .. .. ad oz i
Mft. lotion

Applied to the acutely inflamed joints with great relief. Constipation relieved by liquid paraffin.

Specific drug treatment—During the acute attack of gout which he had several times during his stay in hospital relief was given by the following mixture.

R/ Vin colchici .. .. m xv
Pot. citras .. .. gr xx
Spt. chloroform .. m x
Tr. card. co. .. .. m x
Aqua .. .. ad oz. i
Q. I. D.

During the quiescent period, the patient was put on—

R/ Soda salicylas .. gr xx
Pot. citras .. .. gr xx
Spt. chloroform .. m x
Tr. card. co. .. .. m x
Aqua .. .. ad oz. i
T.D.S.

Insomnia during the acute stage, had to be relieved by:—

(1) Chloral & Bromide mixture i oz at bed time
or (2) Tr opii .. .. m xv
Pot. bromide .. .. gr. xv
Chloral hydrate .. gr. xv
Aqua .. .. ad oz. i
H.S.

On discharge blood uric acid went up to 6 mgs. per cent (on admission 4 mgs. per cent).

Comment

Gout is a disorder of metabolism associated with high level of uric acid in the blood and deposition of sodium biurate in the tissues and is characterised by acute, subacute and chronic inflammatory attack in joints or fibrous tissues.

Among the ætiological factors heredity plays an important part. In the above case his uncle had pain and swelling of the joints which in all probability were manifestations of gout. Allergy is also accused and his father was a subject of chronic eczema which supports this view.

Gout is more common in males and the disease is said to occur after the age of 30 years but its occurrence in the present case at the age of 18 years does not exclude the disease. Allbutt has recorded a case in a school boy who had tophi at the age of ten and both Boehaave and Sydenham mention similar cases.

Gout is supposed to be a disease of temperate climate. Cases of typical gout do occur in different parts of India but are usually missed due to the belief that it is unknown in this country.

Occupation does not play a great part except that usually the disease is found amongst those who are exposed to take alcohol due to their occupation. Chronic alcoholism and high meat diet being rich in nucleoproteins are supposed to be very important ætiological factors, but in our country cases are seen in perfect vegetarians and in those who never touch alcohol in their life.

Injury and strenuous exercise may precipitate an attack. The patient developed the attack while coming back from his fields and perhaps had a strenuous day.

Clinically the above case presents a classical picture of gout. The patient started with typical attack of acute gout which lead to chronic gouty polyarthritis.

The history of the disease, presence of tophi, the swellings, irregularity and deformity in the joints, the increase of uric acid in the blood, the radiographic appearance showing punched out areas at the base or head of the bones and presence of acicular crystals of urates in tophi do not welcome any differential diagnosis.

Gouty dyspepsia of acid type and hypochlorhydria are usually found in these cases, but slightly hyperchlorhydria may be present as found in this case not attributable to gout.

Gout has been responsible for many disorders of the heart and circulation. The above case presented palpitation as one of his leading complaints and the heart showed a little hypertrophy. B. P. was 130/80. Rise of blood pressure occurs late in the disease, and palpitation, tachycardia, anginal pain, extra systole, and auricular fibrillation have all been attributed to gout.

The part kidneys play in gout is still a point of great controversy. The above case presents the urea concentration test as 0·8 per cent, blood urea 50 mgm. per cent and low specific gravity 1008 of urine though with no apparent clinical evidence of kidney damage. The association of gout with renal disease is recognised but whether defective renal function is one of the causes of gout or whether the excretion of irritating matter in excess in gouty cases leads to changes in the kidneys is still in dispute.

The above case has got a typical macrocytic anæmia which is unusual in gout. These patients are usually not anæmic but instead full blooded. The cause of anæmia in this case may be attributed to the class to which the patient belonged. He was an ordinary poor villager and deficient diet combined with disturbances of liver functions which are supposed to play a great part in gout may be responsible for his macrocytic anæmia. This case may be labelled as "Poor man's gout" as contrary to gout occurring in rich, plethoric middle aged people, where the alcohol and rich diet are supposed to act as important ætiological factors, conspicuously absent in the present case.

The patient presents another unexplained symptom of repeated epistaxis with normal blood pressure. Bleeding point could be detected in the nasal septum which was cauterised twice with temporary benefit. Normal bleeding time, coagulation time and blood platelet count excluded any blood disease. This epistaxis had to be attributed to some gross metabolic error.

Another leading complaint of diminished vision in the patient was due to refractive error. Iritis and glaucoma which may be found in gouty patients are excluded by the examination of the fundus and tension which were normal.

Prognosis

Many victims of gout live to advanced age and enjoy good health apart from their periodic outbreaks. The attacks may be separated by periods of years, but

usually the tendency for them is to occur with increasing frequency and to be more difficult to throw off. These differences depend probably on constitutional and inherited tendencies.

In this particular case the prognosis is bad as we find that practically he was crippled since the onset of the disease and the kidney function tests, epistaxis, macrocytic anæmia, his social and economic status made his prognosis still worse.

The only excuse of my sending this case to press is that one should not be led away by the description of this disease given in books as regards the ætiology, climate, age, and progress. We see quite a number of cases of gout, though not so typical as the case mentioned above, but feel worry in making a correct diagnosis of gout due to the false belief of its rarity in India.

My thanks are due to my House-Physician, Dr. S. P. Jain who kept careful notes of the case.

PANSEPTIN IN ACUTE GONOCOCCAL URETHRITIS

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Rapid sterilisation of the genito-urinary tract in cases of gonorrhœa is the fundamental outlook of a rational therapy. It not only saves the victim from the distresses of the acute disease but also prevents future serious complications. Advent of sulphonamides has certainly revolutionised the treatment of gonorrhœa and the experimental results obtained by the use of this drug has given it a definite place in the therapeutics of the present day. Similar experiments conducted with the acridine group of drugs indicate a promising future. A satisfactory result obtained by the use of the latter group of drug in eight cases of acute gonococcal urethritis induces me to write this article so that further investigations may be undertaken with a larger number of patients to find out its real position in the modern treatment of gonorrhœa.

The drug used has the chemical formula of 3-6-di-amino-10-methylacridin chloride. It is a powder of pink colour and is easily soluble in water, glycerine and alcohol. The bactericidal power of the drug is very strong specially for gonococci. A solution of 1 in 110,000,000 is said to be sufficient enough to repress the growth of the cocci while a dilution of 1 in 400,000 is capable of destroying them completely. The drug has been put up in the market as Panseptin (Shionogi Co.), is available in ampoules in 0·5 per cent and 2 per cent aqueous solutions for intravenous therapy.

The clinical diagnosis in the eight cases of acute gonococcal urethritis was further confirmed by the microscopical examination of their respective urethral smears by Gram's method of staining. The patients put under Panseptin therapy were exempted from all other routine measures and every endeavour was made to see that they had no other drug in any form. The injections were given intravenously on empty stomachs and patients were advised to have glucose drink half an hour prior to injections. The injections were given as follows:—

10 c.c. of 0·5 per cent Panseptin was given on the first, third and fifth day and 5 c.c. of 2% Panceptin on the seventh and tenth day only with no treatment in the intervening period.

A gap of four days was then allowed and a second similar course of injections were given exactly with similar precautions. Urethral smears were examined at the end of each course. In majority of cases the patients felt immensely better after the second injection, pus disappearing form the urethra completely though the smear still continued to be positive till the end of the second course when it finally disappeared in all the cases thus treated. No ill effects were observed except in one case where vomiting immediately followed the injection and the patient complained of severe headache for about an hour. The summary of cases in a tabular form is given below:—

Case No. & Age	Duration of illness	Urethral smear before treatment	Urethral smear. after Panseptin	
			1st course	2nd course
1. 24 years	6 days	++++	+	—
2. 24 years	4 days	++++	+	—
3. 16 years	9 days	++++	+	—
4. 40 years	8 days	++++	++	—
5. 27 years	12 days	++++	+	—
6. 35 years	4 days	++++	+	—
7. 30 years	6 days	++++	+	—
8. 29 years	7 days	++++	+	—

++++ indicated—15 or over pus cells with intracellular Gram negative diplococci per microscopic field
+++ „ 5 to 15 „
++ „ 1 to 5 „
\+ „ a pus cell with cocci encountered after search of several fields
— „ Nil

Finally, I remain grateful to Messrs. Ranbaxy & Co. for supplying the requisite amount of the drug free of all costs for the above investigation.

JOURNAL OF THE
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CALCUTTA, MARCH 1942

A PLEA FOR SOYA BEAN IN INDIAN FOOD

Recently soya bean has again attracted much attention among the Indian medical men. The first record of the plant is found in the writings of Emperor Sheng Nung of China in 2838 B.C. and soya bean had been utilized for several hundreds of years by the Chinese and Japanese as food. It was exported to America and then to Germany where it was used for the army. This plant, Soja Max, grows luxuriantly even in sand or cinder if phosphates, potash and lime are present. In case the nitrifying bacteria, required by the soya bean are not present they can be introduced artificially by inoculating the seed before it is sown. The bean contains 46 per cent protein and vitamins A, B, D and E. The seed may be ground into flour which is used for diabetic, infant and breakfast foods. The oil is employed in making butter and lard substitutes and soap, while the juice becomes vegetable milk in condensed and powder forms and also cheese. The range of byproducts is almost incredible, the chief being cattle food, enamels and varnishes, rubber substitutes, linoleum, printing inks, celluloid, explosives, glycerine and some parts of motor cars.[1] Production and processing of soya bean in the United States has developed into a multi-million dollar industry with 47 U.S. manufacturing establishments engaged primarily in the production of soya bean oil, cake and meal according to the 1939 census of manufactures.[2]

Protein deficiency in diets of India has been stressed by various authorities. The vast majority of the population live on a diet largely composed of rice or millet, which contains in addition a little pulse and very small quantities of vegetables but no milk, eggs or meat. Investigations carried by Aykroyd[3], Wilson[4], and others show that the diet of children and adults are far from satisfactory.

Food is the greatest of all factors on which the efficiency of the function of nutrition depends. It is the foundation of all health, chief amongst the armaments of medicine against disease. According to McCarrison,[5] "protective foods are (1) a good whole cereal grain or mixture of whole cereal grains or a good whole meal bread, (2) milk and the products of milk—butter, cheese, curd, butter milk, (3) eggs, (4) green leaf vegetables, (5) root vegetables—potatoes, etc., (6) legumes, (7) fruits and (8) meat. An average Indian may not even dream to have such a diet but experiments by different experts indicate that 20 per cent soya bean and 80 per cent rice provide a well balanced diet as far as protein and fat requirements are concerned. The addition of fruits and vegetables particularly leafy vegetables makes it a balanced food at a cheap cost[6]. It will suit the religious susceptibilities of certain non-meat eaters and moreover *Les plantes Sont le enfants de la terre, de l'air, et du soleil* and we in common with other animals, are the offspring of the plants. Official workers in India did not favour the extended use of soya beans because the beans did not appear to have any advantage over the various common pulse which formed part of the diet of the Indian people.[7] Basu *et al*[8] have shown that soya beans had an advantage over pulses in having proteins of a higher biological value. Certainly pulses are far more inferior industrially. For some unknown reasons the Government did not encourage the cultivation of soya bean. The total state expenditure on agriculture amounts to about £870,000 per annum. The Government draws £25,000,000 per anuum in land revenue from the peasantry. Two thirds of the villages are without schools, sanitary services and health services are almost non-existent. In a country where 71 per cent of the population depend on agriculture for a livelihood, very little is given in return. Is it too much to ask from the Government to encourage the cultivation of soya bean? or they think whatever they do, the people cannot have a balanced diet on an average income per head of approximately 2½d a day!

1. Bowdidge, E, (1935)—The Soya Bean; its history, cultivation and uses. London. Humphrey Mulford, Oxford University Press.
2. *The Chinese Med. Journal* (1941)—59:485.
3. Aykroyd, W. R. (1937)—*Brit. M. J.*, 2: 100.
4. Wilson, D. C. (1937)—*Lancet*, 2: 1445.
5. McCarrison, R. (1936)—*Brit. M. J.*, 2: 611.
6. Ukil, A. C. (1941)—*Science & Culture*, 7: 111-116.
7. Report of the Nutrition Advisory Committee, I. R. F. A. (1937).
8. Basu, K. P. *et al* Quoted by A. C. Ukil, *Science & Culture*, 1942, 7: 351.

* * * *

We congratulate the *A. B. Patrika* for voicing the opinion of the medical profession when it recently protested against the election of Major Fitch I.M.S. as the Director of Casualty Services in Bengal. Major Fitch will work in Calcutta under the Ministry of Civil Defence and relieve the Surgeon General in Bengal of the details connected with the medical arrangements in connection with the air raid precautions. The I. M. A. had already voiced the sentiment that the Surgeon General can hardly be expected to do full justice to the enormous amount of work required in this grave situation in addition to his usual duties. The appointment of a Director of Casualty Service is, therefore, a necessary one though belated. But it is surprising that none but an I.M.S. officer could be found suitable for the work and that in Calcutta or in Bengal, a suitable person to carry on such duties could not be found among the independent medical men or even among retired Government medical officers. When the Army in India is clamouring for more and more doctors to volunteer for the I.M.S. yet another I.M.S. officer of senior rank is retained for Civil work. It is evident that an officer is required who knows or can get to know easily the requirements of Calcutta and its environs and later on of the greater part of Bengal in order to mobilise and then direct the medical aid to all who might be injured directly or indirectly by the war. To do so efficiently an intimate knowledge and close contact with the independent medical profession of Calcutta and Bengal is essential. It may even be necessary to tear up a great deal of red tape that binds all Government activities. Only an elaborate office of the Director of Casualty Services will not show results if ever the casualty services are put to the test.

To be published in the April issue:

Abscess Lung by R. Mahadevan, M.S., F.R.C.S. (Eng. & Edin), Assistant Surgeon, K. G. Hospital & Tutor in Surgery, Andhra Medical College, Vizagapatam.

Non-rotation of the Gut by S. P. Gupta F.R.C.S. (Edin) and P. D. Mukerjee, L.M.S. Department of Anatomy, K. G. Medical College, Lucknow.

Rauwolfia Serpentina: Its Pharmacological Action and its use in Hyperpiesia by R. D. Kapur, M.B., B.S., Medical Officer in charge of I. D. Hospital, Allahabad.

Role of Vitamin C in Growth and Repair of Tissues by P. B. Shastry, M.B., B.S., Physiology Department, Andhra Medical College, Vizagapatam.

Doctors in the New Order by M. V. Natesan, L.M.P., Madura.

Etc. Etc. Etc.

CURRENT MEDICAL LITERATURE

MEDICINE

Painful Disability of Shoulder and Hand Complicating Coronary Occlusions

Askey (*Am. Heart. J.*, 1941:22:1) describes a syndrome of painful disability of the shoulder and hand which persists for from several months to two years after coronary occlusion. This is quite distinct from the pain of the left arm and hand after a paroxysm of angina pectoris. The author has encountered 22 patients with this syndrome and the sequence of events seems to be myocardial ischæmia, cardiac pain, shoulder pain and later hand pain. It is little affected by any type of therapy. The author believes this to be the result of sympathetic nerve disturbance caused by myocardial ischæmia and pre-existing arthritic lesion of the shoulder and the hand and he feels that this syndrome is not a rare sequel of coronary occlusion.

Pneumococcal Meningitis

Coke (*Lancet*, 1941:2:510) reports 14 cases of pneumococcal meningitis with only 1 recovery. 7 of these cases were over 40 and 2 under 2 years. The age incidence of these cases and of 80 cases from the literature have been plotted to show fatalities and survivals. The author points out that below the age of 1 year and above the age of 50 pneumococcal meningitis is almost invariably fatal. The chief reason for the poor results in the series was probably the age of the patients. Intensive chemotherapy should be given in all cases and specific antiserum, in addition, is probably essential for all cases under 5 and over 40.

Blast Injury of the Lungs

O'Relly and Gloyne (*Lancet*, 1941:2:423) describe in detail 8 severe cases of blast injury to the lungs without external injury and 2 cases with injury to the chest wall and 7 less severe cases. Diagnosis is not difficult in most severe cases. Gross shock, out of proportion to the degree of injury, pain in the chest, restlessness, dyspnœa and cyanosis are the main symptoms; blood stained sputum or free hæmoptysis may be present, bulging of the chest wall, poor respiratory excursion, normal percussion note with perhaps impairment in one locality, distant breath sounds in all zones and numerous coarse rales or sometimes rhonchi are the main physical signs. In milder cases the degree of symptoms is less and the physical signs are less prominent. Broncho-pneumonia is a common sequela. The radiological appearances are characteristic, resembling in some measure a patchy pneumonic consolidation. Pathologically there was gross effusion of blood into the mediastinum due to rupture of capillaries. To naked eye the lungs exhibited patches of intense congestion resembling early lobar pneumonia. Histologically there was (*a*) extensive outpouring of erythrocytes, (*b*) rupture of elastic tissue and capillaries and (*c*) secondary infection with streptococci causing bronchopneumonia. No evidence of fat embolism was seen. The treatment consists of heat morphia, oxygen and plasma transfusion. Blood is only indicated if there is marked anæmia; chemotherapy should be started as soon as the patient has recovered a little. 5 cases showed severe abdominal signs and 2 were explored. Operation is contraindicated unless the signs point to a specific lesion. A general anæsthetic should be postponed as long as possible. The patient should not be moved more than is absolutely necessary.

A Case of Crush Injury with Recovery

Maitland (*Lancet*, 1941:2:446) reports a case who developed severe renal failure as the result of burial for 15 hours under a bombed building. He was pinned across the right thigh and right side of the trunk. He also had a lesion of the right brachial plexus and pulmonary concussion. He was treated by complete protein starvation, and forced fluids, with injection of suprarenal cortical extract. A large proportion of the fluid was retained between the 7th to 15th days without any corresponding increase in the œdema, though a general anasarca was present from the 16th to the 28th day. Improvement began on the 10th day and four months after the injury the patient appears to have made a good recovery inspite of an intercurrent bronchopneumonia and a stretococcal infection of the throat. An anæmia persists inspite of treatment which suggests some renal damage not evident to tests of function; and the affected thigh though anatomically normal has lost almost all its extensor power. It is suggested that in such cases the renal failure is caused by the vascular stasis due to lowered blood pressure from the time of injury, to the lack of fluid intake during the period of burial, and to flooding of the circulation with protein from damaged muscle. The lesion in the kidney may be aggravated by transfusion with plasma or concentrated serum.

Nicotinic Acid for Psychiatric Disorder

Syndenstricker and Gleckby (*Am. J. Psych.* 1941:98:83, Ref. *J. A. M. A.*, 1941:117:1465) report successful results with nicotinic acid in the treatment of 29 patients with symptoms of severe active psychosis but with no signs of pellagra, the predominating psychotic changes being maniac excitement delusion, hallucinations disorientations and delirium tremens. The resopnse to treatment was prompt, often spectacular whereas other previous treatment was of no benefit. 7 of the 29 patients showed improvement only—the nicotinic acid did not furnish a permanent solution for their psychotic problem; one remained psychoneurotic and the other showed persistent intellectual and emotional impairment which apparently was related to cerebral arteriosclerosis, senility and other factors. The chief psychiatric problem in other 22 patients was solved by vitamin therapy. The authors believe that the symptoms of many patients whose psychiatric status suggests toxic psychosis or exhausation delirium may be relieved by nicotinic acid therapy. In such patients, also in those who show unexplained clouding of consciousness a therapeutic trial of nicotinic acid may be the only means by which to determine whether or not the psychosis is due to avitaminosis.

Trigeminal Neuralgia: A Suggested Basis for Treatment

Adams and Robinson (*Lancet*, 1941:2:255) basing on the hypothesis that the paroxysms of trigeminal neuralgia are ischæmic in origin treated 7 cases of trigeminal neuralgia with vasodilator drugs. Nicotinic acid was used in doses ranging from 50 mg. twice daily to 75 mg. four times daily—in every case there was improvement sometimes amounting to complete relief and this improvement had been generally maintained. In two cases a paroxysm at its height was relieved in a few minutes by an inhalation of amyl nitrite. Vasoconstrictor drugs, *viz.*, adrenaline, benzedrine were used in 3 cases—in one adrenaline provoked an attack and in the other 2 cases benzedrine increased the number and severity of the paroxysms.

Vaporised Sulphanilamide in Bronchiectasis

Castex and others (*Arch. argent. Euferm. Apar. rest.*, 1941:9:29, Ref. *Lancet*, 1941:2:406) report successful results on the treatment of bronchiectasis and other forms of chronic pulmonary suppuration with inhalations of a vaporised solution of prontosil soluble when ordinary medical measures have failed. Inhalations are given thrice daily and for each inhalation 3-5 c. cm. of 5 per cent solution is used made upto 25 c. cm. with saline and vaporised in a special apparatus. Treatment must be continued for 3 months and each patient receives on an average a total of 50 gm. of prontosil. The only toxic effect observed has been diarrhœa, which in a few cases has been persistent enough to preclude further use of the drug. In these cases Rivanol inhalation has been substituted but this drug has an unpleasantly bitter taste. This method of treatment can be easily used by ambulatory patients.

The Use of Diphtheria Antitoxin and Toxoid in Leprosy

Collier and Mckean (*Thai Science Bull.*, 1940:2:2) write that results have been found to be rather encouraging by this new method of treatment of leprosy by diphtheria formol toxoid. Although it is too early to state definitely the kind of chemical relation or biological relation between leprosy and diphtheria the use of antitoxin and toxoid does show results which do not seem to be that of a non-specific serum protein. The beneficial effects are probably due to the action of the drugs on the adrenaline secretion of the individuals. The results from among approximately 120 cases treated are summarised as follows:—

(1) Immediate reduction of leper nodules, plagues, and tuberculoids; (2) rapid improvement in leper reactions, with usually lasting effects; (3) return of sensation in some previously anæsthetic areas; (4) reduction of enlarged nerves, particularly the ulnars; (5) general physical improvement; (6) fragmentation and granulation of the bacilli; (7) as yet no harmful or deleterious effects have been observed.

(In a limited number of cases treated with diphtheria toxoid in Calcutta, it has been found that patients running continuous temperature for a prolonged period began to feel lighter, and the temperature which resisted usual methods of anti-reactionary treatment, gradually came down to normal. In one case of tuberculoid type, however, with high blood pressure, the patient complained of headache and slight rise of temperature even with comparatively smaller doses of the drug.

Combined diphtheria toxoid therapy and hydnocarpas therapy is under trial, and is probably giving better results.—A. Gupta.)

Dietary Treatment of Scaly Desquamative Dermatoses of the Seborrheic Type

Gyargy (*Arch. Dermat. & Syph.*, 1941:43:230) remarks that pellagra is only one of the conditions involving the skin and connected with the members of the vitamin G (B_2) complex and is due to a deficiency of nicotinic acid in the diet.

From animal experiments he finds that various cutaneous manifestations bear pathogenic relationship to diets deficient in vitamin G (B_2) complex, histin (vitamin H), pyridoxine (vitamin B_6), pantothenic acid or riboflavin. The results of these experiments are described in detail. The possibility of 'seborrheic diathesis' in man having a nutritional foundation is suggested.

Liver and yeast which have been and still are used in the treatment of various pathologic conditions of the skin are considered to be mainly sources of members of the vitamin G (B_2) complex. The quantitative point of view is particularly stressed, and emphasis is placed on the fact that the doses of yeast and liver commonly advocated in clinical treatment appear to be far below minimum requirement computed from animal experiments.

A. Gupta.

SURGERY

Intrasternal Transfusion

Tocantins and O'neill (*Surg. Gynec. & Obstet.*, 1941: 73:281) basing on the experimental results obtained from the rapid absorption of the saline solutions from rabbits' bone marrow introduced a new method of transfusion in man, *viz.*, by the intrasternal route. In adults the sternum is used, preferably the manubrium or midway between the angle and xiphoid process; in children under 3 years the upper end of the tibia or lower end of the femur is preferred. The technique is not difficult. The authors use an instrument consisting of a gauge—15 needle housing an inner gauze—18 needle which in turn contains a stylet. Three lengths are desirable—2, 3·5 and 5 cm. and once inserted the needle is prevented from penetrating more deeply by a collar held by a set screw. The site chosen is first anæsthetized down to the periosteum with procaine and the double needle is then pushed and twisted down to the periosteum at right angles to the skin. Next the needle is tilted about 30° with the skin and the plate of the bone is perforated which is recognised by lessened resistance; the collar is then adjusted and the stylet removed. A syringe containing about 1 c. cm. of saline is attached to the inner needle and gentle suction should bring some marrow into the syringe. Not more than 0·5 c. cm. of marrow is aspirated and the inner needle is removed and flushed out with saline and reinserted. Saline is alternately injected and aspirated through it to displace air from the outer needle. Finally 1·2 c. cm. saline is injected into the marrow, the inner

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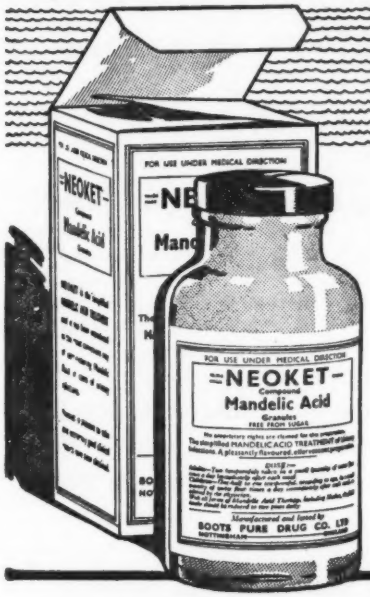

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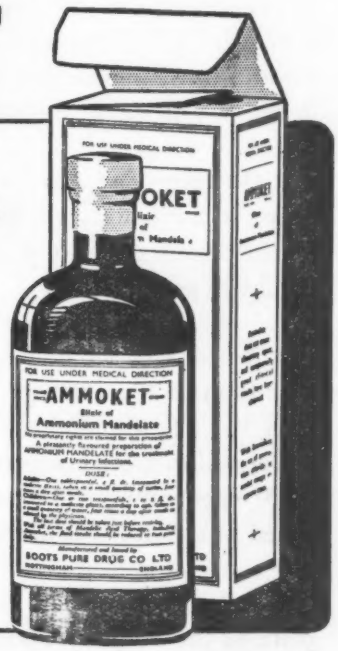

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Detailed particulars and prescribed application forms can be obtained from the office of the Surgeon General with the Government of Bengal, Writers' Buildings, Calcutta.

needle removed and rubber tubing filled with saline leading from the reservoir is attached to the outer needle. Speed is essential because marrow clots easily. At first the flow is only about 2·4 c. cm. per minute but it quickens in about quarter of an hour with a head of pressure of 100 c. cm. The rate of flow in adults has been upto 25 c. cm. per minute. A successful infusion can only be given into a vascular bone marrow and this will contain very little fat, so that a fat embolism is said to be non-existent. The authors had no untoward reactions with 52 infusions in 33 adults and 7 infants. This method will be particularly useful where veins are not available, where veins get blocked (particularly where long and slow transfusions are required), where veins are so collapsed or contracted in shock that they will not allow the transfusion fluid to pass and in those cases where every vein has been used up.

Treatment of Peptic Ulcer Based upon Physiologic Principles

Ochsner and DeBakey (*Rockey Mountain M. J.*, 1941:38: 768) maintain that peptic ulceration is established by the summation of two groups of factors: (1) the predisposing and (2) the precipitating. The former consists of (*a*) tissue susceptibility which may be defined as an inherent vulnerability of certain portions of the gastro-intestinal tract to the digestive eroding effect of acid gastric juices and (*b*) constitutional predisposition which may be considered as an ingrained susceptibility of certain individuals to gastroduodenal ulceration. The precipitating group is comprised of: (1) chemical, (2) mechanical or traumatic and (3) infection factors. Whereas both the predisposing factors may be present in an individual ulceration does not occur unless there are added the precipitating factors. Since the predisposing factors are comprised of innate characteristics they are uncontrollable and can not be influenced by therapeutic measures; on the other hand the precipitating factors are controllable and therefore of the therapeutic significance. Acidity is an important precipitating factor and is controlled by avoiding tobacco and alcohol and taking of frequent small meals (avoiding large meals) and the use of effective antacids when necessary and of antispasmodic drugs in preventing the spasm of the pylorus which again interferes with normal regurgitation of the alkaline duodenal secretion into the stomach. To prevent trauma of the gastric mucosa the patient with peptic ulcer should avoid all rough foods, such as uncooked vegetables, and fruits. Regarding focal infection it is important not only to remove specific foci of infection as emphasized by Rosenow and others, but also to correct and eradicate non-specific foci of infection such as lesions in the gastro-intestinal tract or appendages as the latter will reflexly produce pylorospasm and the well-known vicious circle will soon be produced.

The surgical treatment of peptic ulcer consists largely of treatment of complications, *i.e.*, actual perforation, mechanical obstruction, repeated hæmorrhage, suspected malignant change and occasional intractability. The indications for the type of operative procedure which should be employed in various complications are discussed. In general it may be stated that with exception of perforation in which simple closure is the procedure of choice and in pyloric occlusion with anacidity in which gastro-jejunostomy is the procedure of choice, all other cases of peptic ulceration which require radical surgical therapy should be given advantage of subtotal gastrectomy.

Five Year Survey of Blood Sedimentation Test in Acute Appendicitis

Lesser and Kaufman (*Surg. Gynec. & Obstet.*, 1941:73: 163) in reporting on the study of blood sedimentation tests done on 132 patients with a preoperative diagnosis of acute appendicitis or with primary pathologic appendical changes observed that in 99 cases operation confirmed the preoperative diagnosis of acute appendicitis and in 90 of these the blood sedimentation rates were 15 or less in the hour and in 9 the readings were raised from 21 to 26 mm. in the hour (explained by personal error being examined by a few of many internees), that there were complicating appendical abscess in 8 and generalising peritonitis in 10 and in all these cases the blood sedimentation rate was consistently elevated and that in 15 cases the diagnosis was erroneous and the blood sedimentation rate was higher than the normal ones in acute appendicitis. Thus as a result of blood sedimentation reading patients with acute adnexal disease in which operation is needless and frequently harmful are submitted to operation less frequently.

Vitamin-C (Ascorbic Acid)—Its Therapeutic Value in Inflammatory Conditions of the Cornea

Lyle and Mclean (*Brit. J. Ophth.*, 1941:25:286) working at two separate R. A. F. Hospitals recorded their experiences with the use of large doses of ascorbic acid in the treatment of seven inflammatory conditions of the cornea, necessitating hospitalisation of the patients. Details, duration of treatment and the progress of the following were reported:—

(1) Dendritic corneal ulcer, (2) desciform keratitis, (3) scleritis with early sclerosing keratitis, (4) superficial punctate keratitis, (5) post-vaccinal keratitis, (6) phlyctenular keratitis, (7) superficial punctate keratitis, (8) phlyctenular ring ulcer, (9) generalised seborrhœic dermatitis with keratitis and corneal ulceration of both eyes. In cases Nos. 1, 2, 3, 5, 6 and 8, suitable local treatment for over long periods being of no avail in each case, ascorbic acid (Roche) was given intravenously in addition to the local treatment and the improvement was rapid and marked in all cases. Also in the rest of the cases, in which both local treatment and ascorbic acid administration were started simultaneously, the results were remarkably good.

But, on the contrary, the vitamin-C administration was not beneficial in inflammatory conditions of the iris. It definitely proved harmful in a case of irido-cyclitis where, after administration of ascorbic acid, the hyperæmia of the iris became severe enough to give rise to hyphæmia. Vitamin-C therapy was immediately stopped and improvement in the condition was noted. Repetition of injections of ascorbic acid resulted in the same complication once again.

The authors conclude that in corneal conditions as ulceration, superficial type of keratitis, and chronic corneal opacities, the administration of ascorbic acid produces rapid improvement in the condition.

They recommend the following lines of treatment. Intravenous injection of 500 mg. of ascorbic acid daily (concentrated vitamin-C ampoules 500 mg. per injection—Roche) till active inflammation subsides. This is followed up by two tablets of ascorbic acid (Roche—250 mg. each) thrice a day by month. The authors did not observe any local or general reaction in the course of treatment adopted by them in this series of cases.

P. B. SASTRY.

OCULAR INJURIES RESULTING FROM THE WAR

Dutchie (*Lancet*, 1941:2:369) in opening a discussion on the subject at the annual congress of the Ophthalmological Society of the United Kingdom held at Cambridge in September last said that he had seen only 50 severe injuries in Manchester and ruptures were the most common of all war injuries, many, especially those due to flying glass were virtually untreatable and even when they were not severe the end results were deplorable; subconjunctival ruptures with or without dislocation of the lens were not infrequent. Lablaster (Birmingham) reported that of 100 cases seen at a casualty hospital 60 were cases of traumatic conjunctivitis, 21 were penetrating wounds chiefly from metal or glass foreign bodies, 6 were cases of corneal abrasions, 5 were cases of subconjunctival hæmorrhage and 5 were injuries to the lids only. There were single cases of central retinal block, detached retina and orbital cellulitis. Of 21 cases of penetrating wounds 12 had required enuleation of one eye. There was no case of complete bilateral loss of vision. Caiger (Sheffield) reported a case aged 65 whose one eye was blown right out of the socket by blast and the other eye showed detachment of the retina. More than twenty speakers took part in the discussion and many reported cases in which there had been no apparent injury to the eye by a blow or the penetration of foreign body and yet there was serious damage which could only be put down to blast. Purvis (London) in reporting 128 firemen treated at Moorfields observed that all but 4 had corneal or conjunctival foreign bodies, none of them, however, needed in-patient treatment and only 24 a second visit to the hospital. Nutt (Sheffield) stressed the necessity for an ophthalmic surgeon to see eye cases as soon as possible after their admission into the hospital before they were lost in the surgical wards on account of other injuries.

OBSTETRICS AND GYNAECOLOGY

FIBROIDS

Mahfouz and Magdi (*J. Obstet. Gynæc. Brit. Emp.* 1941: 48:293) in his review of 931 cases of myoma all treated by operation gives the following interesting facts: 86 per cent were multiple, 14 per cent single; 58 per cent intramural, 24 per cent submucous and 18 per cent subserous; only 2 per cent were cervical in situation. Ovarian cysts were associated in 16 per cent of the cases and inflammatory disease of the adnexa in 28 per cent. The latter complication is regarded as a serious one as it considerably increases the fatality, the most common cause of death being peritonitis in 52 per cent of the fatal cases. Axial rotation of the tumor occurred in 5 patients; various degenerations were noted in 18 per cent of the tumors removed and red degeneration in 6 cases; in 3 cases the tumors had been detached entirely from the uterus and gained a new parasitic foothold on the omentum; malignant degeneration was noted in 3 cases—a very low incidence. The operations performed were; subtotal hysterectomy in 459 cases with 9 deaths; abdominal myomectomy in 362 cases with 5 deaths and total hysterectomy in 18 cases with 3 deaths (a high figure explained by associated tubo-ovarian infection resulting in peritonitis). The authors put the recurrence figure after myomectomy at 5 per cent. They regard the operation as dangerous if the cavity of the uterus has to be opened or if multiple incisions are needed for enucleation of many tumors. The incidence of stump carcinoma in the cervix after subtotal hysterectomy was nil.

LOCAL ANAESTHESIA IN DELIVERY

Sheldon (*New Eng. J. Med.*, 1941:225:404) reports successfully of the method of local infiltration anæsthesia in pelvic delivery. He has used this method in 64 cases and finds it extremely satisfactory for the following reasons: (1) the mother avoids the risk of an inhalation anæsthesia while the operator has all the muscular relaxation of the outlet such as only a deep general anæsthetic could otherwise provide, (2) shock and blood loss are minimal since uterine tone is not in any way prejudiced by the atonic effects of a general anæsthesia and the chances of an atonic postpartum hæmorrhage are avoided, (3) the baby is no more affected than if the delivery had been conducted without any anæsthetic at all and no respiratory depression from inhalation anæsthesia with a resulting minimum of cases of asphyxia. There are three sets of nerves which supply the part (the perineum and genitalia) and to infiltrate these nerves three points are chosen, the first over the external abdominal ring, the second just medial to the tuberosity of the ischium, and the third in the middle of the perineal body. From these points a fanshaped area is infiltrated spreading towards the vagina. About 10 c. cm. of 1 per cent solution of procaine is used for each point amounting to 50-70 c.cm. in all. The addition of 10 minims of 1 in 1,000 solutions of adrenaline to every 100 c. cm. of procaine solution prolongs the anæsthetic effect and has a small but valuable hæmostatic effect. The timing of injection is very important. In the primipara the time for infiltration is when the baby's head is on the pelvic floor but in multipara as soon as the os is fully dilated. The period of anæsthesia expected varies from 1 to 2 hours. The extent of anæsthesia is sufficient for the performance of an episiotomy or for the application of low forceps and the suturing of perineal tears. The results obtained are satisfactory and deserve further trial of the method.

OXYGEN TENT THERAPY IN THE TREATMENT OF ECLAMPSIA

Nicodemus (*J. A. M. A.*, 1941: 117: 1238) points out there are evidences to show that there is anoxia in eclampsia (as manifested by the signs and symptoms in addition to the blood chemistry) and oxygen therapy is rational treatment for all forms of anoxia. 13 patients treated by the conservative modified Stroganoff method in conjunction with continuous oxygen

therapy completely recovered and 9 living babies were born. The interval between the onset of eclampsia and the subsidence of symptoms was much shorter than it had been before the use of oxygen.

Survey of Infantile and Juvenile Pneumonia

Elliot (*Arch. Dis. Childhood,* 1941:16:121) in reporting on a review of 895 cases of juvenile pneumonia in Dublin for the years 1937 to 1939 observes that the age of the patient and the pathological type of causative organism are still of great importance in determining prognosis. There appears to have been a lowering of the death rate from the apical pneumonia in the first year of life since the introduction of chemotherapy but the results of treating lobar pneumonia by chemotherapy alone in infants are disappointing. Statistical and experimental studies suggest that the administration of serum with chemotherapy in infantile pneumonias gives the best results. Experiments indicate that anti-pneumococcal immunity mechanism is relatively weak in infants. Children over 2 years of age can be treated in a similar manner as adults. All infants under 2 years of age with pneumonia should be treated in a properly equipped hospital. Blood transfusion, parenteral fluids, oxygen, sedatives and skilled nursing are almost as valuable as chemotherapy in severe cases of pneumonia in infants. They are particularly important in premature and poorly nourished children. The importance of maintaining weight during treatment is emphasized. Efforts to continue breast feeding should be made. Factors determining prognosis are (1) age of the child—if the child is below 2 years of age difficulties and failures are likely, if the child is over 2 the chances of recovery are good; (2) the time of starting treatment—if delayed prognosis becomes worse; (3) the general condition of the child—poorly developed, undernourished and premature children have the worst prognosis and (4) treatment given.

A Comparison of the Value of Crystalloid Solution, Whole Blood, Blood Plasma in the Treatment of Dehydration in Infancy

Aldridge (*Arch. Dis. Childhood,* 1941:16:182) gives in the following lines the summary of his observations: Solutions of normal (0·9 per cent) saline should not be used as routine treatment in dehydration from gastro-enteritis; in many instances there is an apparent, if not actual, accumulation of chloride in the blood which may increase if further chloride is administered. The routine use of whole blood in the treatment of dehydration is not recommended, as in the majority of cases the blood, which is already concentrated, becomes even more so as the result of treatment. When considering the use of blood transfusion the hæmatocrit and preferably the red cell count and hæmoglobin concentration in addition should be estimated. If these are raised above normal the case is unsuitable for transfusion. In those patients in whom the hæmatocrit shows a marked degree of hæmoconcentration and who require more drastic treatment than the administrations of crystalloid solutions parenterally, transfusions of plasma should be undertaken.

Vitamin E In Post-Diphtheritic Paralysis

Butturini (*Giornale di clinica Medica, Parma, Ref. J.A.M.A.,* 1941:117:1472) studied two groops of 11 patients, each with post-diphtheritic paralysis, one of which had an adequate amount of serum in course of diphtheria while the other had an insufficient amount. Patients of the first group were placed in 3 subgroups: those who had serum therapy alone, those who had serum and vitamin E and those who had vitamin E alone. Patients of the second group were placed in two sub groups: those treated with serum and those treated with vitamin E. Vitamin E was administered by mouth in daily doses of from 9 to 18 mg. for four to five days. Best results were obtained in patients treated with vitamin E. Paralysis of the velum pendulum regressed and disappeared early in the course of treatment, the muscles regained strength and the cardiovascular function returned to normal. The author believes that diphtheria causes more or less acute avitaminosis E which is the cause of post-diphtheritic paralysis. The paralysis may be combated with vitamin E therapy. He advises vitamin E therapy for prevention of post-diphtheritic paralysis in the course of diphtheria. The treatment is harmless and well-tolerated. The good results from vitamin E have remained unchanged upto the present date, several months after cessation of treatment.

Treatment of Scabies: Use of Sulphur Lather Tablets

Carter (*Brit. M. J.,* 1941:2:401) working on Nolan's principle of treating scabies with sulphur soap which is applied to the body in the form of a lather, introduced his method in which he used, instead of soap, a tablet in which the amount of sulphur suggested as adequate (0·72 gramme) was incorporated with a lathering agent. This will not only save a large amount of sulphur but prevent the occurrence of sulphur dermatitis to a large extent. The procedure is as follows: Each child is given a hot bath, the body being scrubbed with a nail brush or a harsh flannel; he is removed from bath and lathered all over with the tablet, a foam being produced by rubbing the tablet between the nurse's wet hands; the lather is allowed to dry, this taking 5 minutes in a warm bathroom and the clean vest is put on. This procedure is repeated on two successive days and verbal instruction is given to the parent about boiling the clothes and sheets. All cases are cured in seven days; average number of applications required is three, average duration of treatment is 4 days and there is no case of dermatitis. This treatment is specially successful in children of all ages in a school treatment centre.

CASE NOTE

ACUTE MYELITIS (POST ANTI-RABIC INOCULATON)

M. L. DANG, D.T.M. (Cal.),
Dehra Dun.

The case described below is the one that occurs very rarely, and at least I have seen one in my twenty years' practice both in civil and military life. The peculiar thing in this case was the presence of an acute transverse lesion of the cord unaccompanied by the lesion elsewhere in the nervous system and then the rapid clearance of all in so short a time.

On the evening of 27th July, 1941, I was called to see a case Mr. P., aged about 21 years. He had pain in the abdomen, vomiting, general discomfort, burning sensation all over the body, pain in the back over the dorsal spine at the level of 6th-7th dorsal vertebræ, constipation for three days.

On examination:—Tongue thickly coated, dry, covered with a brownish fur; throat clear; abdomen rigid, tympanic note on percussion, painful to palpate; temperature 99°F; pulse rate 88 beats per minute, regular, quick, and of moderate volume; B. P.—systolic 118, diastolic 82; heart and lungs—no abnormality; other systems—nothing particular.

Previous history:—Had six injections of antirabic inoculation, last injection finished on 21-7-41.

Treatment adopted was: (1) Fractional doses calomel followed by mist. saline, (2) turpentine stupes on abdomen.

28-7-41. No motion, condition unchanged, temperature betwen 100-101°F. Treatment given was: (1) intestinal antipasmodic mixture and (2) soap and water enema.

The same evening the patient told me that he had not passed urine for 2 days. So the urine was taken out by catheter when all other methods such as fomentations and tub-baths failed to relieve the bladder.

29-7-41. Urine retained, constipation, temperature 100°F. Advised x-ray to exclude stone in the bladder.

30-7-41. When the patient was brought to the x-ray room to my surprise I found that patient had paralysis of lower extremities. Immediately I put him on the table and examined:—

Temperature 101°F, paralysis and anæsthesia of lower legs, patient unable to raise his legs on the bed, but he could move his toes feebly. The legs were spastic, motor functions lost, numbness in both legs and thighs, more marked in right, sensation to pin prick and sense of heat and cold lost in legs but diminished in thighs. Deep reflexes absent. Bowels constipated, bladder affected with retention of urine. Pain over dorsal spine as above referred. Lower abdomen below umbilicus hyperæsthetic, pain and burning in abdomen below the costal arch. Abdominal reflexes were smart. X-ray of the urinary bladder and vertebræ gave negative findings. Urine examination showed few pus cells.

31-7-41. The condition remained unchanged, but deep reflexes increased, knee jerk exaggerated, ankle clonus present, plantar response was extensor. All the muscles of both legs were stiff and spastic as bending of the knee joints were difficult even by passive manipulation.

A medical board including the Civil Surgeon, Dehra Dun confirmed the diagnosis.

3-8-41. Temperature normal, spastic condition disappeared. Motor functions returned, patient could move his legs, bend his knees and hip-joints, could raise his buttocks but there were signs of general irritability and feelings of restlessness. Bowels still constipated, retention of urine present. Tongue thickly coated.

Up to 15-8-41 the patient had been progressing favourably, he could sit, stand, walk, no temperature, no complaint except retention of urine which was being taken out thrice daily. On 16-8-41 patient suddenly shot up a high temperature with rigor and general restlessness. Pain in right groin over the right kidney. Blood examination showed high leucocytosis, no malaria parasite. Urine examination showed pus cells in large amount. Inspite of all that there was no effect on the nervous system. This septicæmic condition persisted uptil 19-8-41, but Prontosil tablets two six hourly with alkalies cleared up the whole condition. From 20th August, 41, the patient made an uneventful recovery and is in perfect health now.

The above case is of interest for the following reasons:—

(1) The myelitis set in suddenly and was in acute form, developed few days after the last antirabic inoculation.

(2) Such cases are very rare though thousands undergo inoculations whether the animal turn out rabid or not.

(3) Immediate disappearance of paralysis though bladder condition took a long time to clear.

I wish and request the medical practitioners and others in service especially who are in charge of antirabic treatment centres, to watch such after-effects when they had completed the individual course.

I am highly indebted to R. B. Dr. R. S. Srivastava, Civil Surgeon, Dehra Dun and Dr. P. C. Hoon, M.B., B.S., my professional colleague, for their help and encouragement in managing the case.

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DISEASES OF THE VISUAL APPARATUS : ANCIENT AND MODERN

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The appreciation of diseases of the eye in ancient Ayurvedic system, like that of Western ophthalmology, is a comparatively later development. Many many years after the inception of Ayurveda, only four diseases of the eye are found discussed in Charaka-Samhita. Nimi is credited to have written much but we have no record. At Susruta's time with Nagarjuna's addition 76 diseases of the eye are found dealt with. Centuries after, Vagbhata wrote exhaustively on this subject in his ever memorable Uttarasthanam. This work remains to this date the master piece in Ayurvedic ophthalmology. It is from these sources I have based the following observations.

"Drishti-Roga" or diseases of vision is described by Vagbhata mostly in chapters XII & XIII of Uttarasthanam. He describes the visual apparatus as consisting of four "patalams" or compartments beginning with the structures from the back of the eye, but a precise description of each of these patalams and other details are lamentably lacking. And yet a close reading of the texts allows one to presume that this versatile Vagbhata knew much about choroid, retina, vitreous and lens as chief factors in the visual apparatus and I shall endeavour to show presently the nature and extent of this knowledge and at the same time view that knowledge in the light of our modern ideas.

The disease of the first patalam and its symptoms are described as follows:—"Siranusarini malai patalam pradhamam .....nimithatha." When the doshas *viz.*, Vayu, Pitta, Kafha and blood reach the first patalam of the eye through "sira" the blood vessels and lymphatics(?) a clear perception of objects rendered defective. At times no dimness even is felt.

Does the author mean only our three differently sized layers of vascular choroid or does he include retina also in this. Does the affection of the choroid give all the above symptoms?

A categorical answer to these is difficult, but in the affections in the back of the eye, unlike those of the cornea, Ayurveda takes the last structure as the first patalam and one in front as its second and as the disease of this area is capable of producing the symptom detailed above, I feel Vagbhata knew about choroid and must have meant it as his first patalam.

In contrast with his knowledge of this area, our classification of diseases of choroid is either a congenital or an acquired condition and if latter it is inflammatory, degenerative, traumatic or neoplastic in origin and our ophthalmoscope readily reveals all these conditions in the fundus picture. Vagbhata's above sloka does not warrant us to credit him to have known or seen these conditions and his stanza only shows a choroid and nothing more.

Of his second patalam he writes thus;—

"Prapte dwiteeya patalai..... timiraghyooya mamaya." (when the second patalam is affected objects seem to appear in front. The large and near objects are seen only on close scrutiny. Minute and distant objects are not seen. Near objects appear far and far ones near. When the dosha, the causative humor, is in the centre, an object loses its contour and appears roundish and in multinumber and also presents various colours according to the predominating dosha. Objects also appear smaller or larger than their real size. If the dosha is placed below, then the near objects are not seen and if placed above, the distant ones not seen and if at the sides, the corresponding side ones not seen. This kind of disturbance in the first two patalams are called 'timiram'.

Whether this second patalam is vitreous only or it includes retina also is not clear from the text; but judging from the above description I think it includes both and also some features of lenticular opacities as well.

To us vitreous is a clear transparent "gel" attached at ora serrata and at the sides of the optic disc with developmental peculiarities and containing fibrillæ, one set of which passing close to retina called the limiting membrane, the other set behind the lens producing the fossa patellaris and the third is the rest of this gel in the cavity. An opacity of this vitreous is either a muscæ volitantes or a persistent hyaloid artery of the congenital condition and if acquired, we have the exudates of a choroiditis, a hæmorrhage of a trauma or by disease like diabetes the gliomatous cells of a neoplasm, the synchisis scintillans of a degeneration, a cyst of a parasite and others. Vagbhata's description on objects appearing in front and their indistinct condition may be due to the floating bodies and turbid vitreous; but all the symptom-complex mentioned by him could not be explained by this condition of vitreous. Since he attributes to this patalam the function of seeing objects larger or smaller than their real size corresponding to our micropsia and macropsia, I presume retina is included in the second patalam. But his description to see objects near, far or on sides and presenting in colours reveal a condition not of retina and vitreous. A central opacity in an accommodated pupil or a peripheral one in looking far will answer this part of the sloka and I feel he includes some condition of lenticular opacities also in this patalam.

About the third and fourth patalam he writes as follows:—"Praptothi Kashatam doshai treteeya patalsrite..... mandalam." (When the same doshas reach the third patalam it is called Kacham in which objects in front are seen as if seen through a thin cloth and objects below are not seen at all. The objects appear in different colours and vision gradually deteriorates for want of treatment. This opacity increases and fourth patalam is attacked and it becomes Linganasam.)

It is self evident that Vagbhata here means lens in its different stages of opacity. But to us lenticular opacity is not

so simple nor its course so prosaic. The opacities in this biconvex structure enclosed in its elastic capsule, having cubical, cylindrical and pyramidal cells on its anterior and other known peculiarities have been studied by many. Miss Mann wrote on its embryology and reasoned the formation of opacities in its congenital variety. Magnus, Knapp, Kirby and others located the opacities with the aid of slit lamp in the old. Friedenwald studied the pathology of cataract of various types. It is not the purpose to dilate here on these or to describe the responsibility of the auto-oxidation system of the lens in causing opacities. Let it be stated that we generally classify lenticular opacities according to its time of development *e.g.,* lamellar, fusiform, corollary, senile, or according to its consistency, *e.g.,* hard, soft or Morgagnian or according to its location, *e.g.,* capsular, cortical or nuclear, *etc.* We fail to see in the Ayurvedic texts any mention of these types or peculiarities or their significance and I think that our ancients knew little of these and much less of their implications.

Having described the patalams and defined Timiram, Kacham and Linganasam, Vagbhata proceeds to classify each one under each dosha at each stage and combination of doshas at all the stages. Thus a *vata* will produce a vata timiram a vata kacham and a vata linganasam and so with the rest of the doshas and their combinations. Thus the list amounting in all to 27 varieties are grouped as follows:—

I. Vata Timiram:—"Dhoomavila-runa....atracha". (Objects often seem to appear as if seen through a smoke. They seem to be moving and they present haloes. A net-like, hairlike, mosquito-like lines are seen when seeing an object.)
Since Timiram includes first and second patalams the description denotes only a turbid vitreous with black floating bodies.

V. Kacham.."Kache bhoote....manyatey". (When vata timiram not treated it goes to vath kacham. The eye becomes red and objects appear red and distorted. Nose is not seen in looking at a face, sun and moon appear as many, straight objects appear as bent and bent ones straight.).

The above is a queer description. Why is the eye red? Is the redness circumcorneal? Why erythropsia in this variety? We have no means to know these. Perhaps he means a complicated cataract with synechia and secondary glaucoma.

V. Linganasam. "vridha kachoo....darsanam". (When v. kacham increases the pupillary area becomes smoky dusty and appears red. Then the pupil is either contracted or dilated and vision deteriorated).

Either the pupil is dilated as a result of loss of vision or the pupil contracted by iritis and the area is smoky by occlusio pupillæ. Perhaps he means these conditions and in fact one of his diseases mentioned at or about this stage called "Ganbheeram" "drikmandalam....smretham" in which the vata makes the blood vessels of the iris tortuous and makes it bent inwards which is evidently a description of iritis with post. synechia.

II. Pitta Timiram. "Pittaje timirai.....pasyati". (In this P. timira, objects present glitterings as seen in a lightning or in the phosphorescent light of a fly or in bright incandescence of a light and present many colours of blue, green, yellow like the colours of the wing of a peacock or that of the titiri animal.)

Probably this is due to the synchisis scintillans in which the golden rain particles with cholesterin crystals shower like bits of coloured paper thrown from a height.

P. Kacham. "Kache drek.....dhanoonshi cha." (The pupillary area appears dark and objects seen are dark and also seem to see rainbow colours, rays of sun and moon).

This is the hard cataract in which the pupil looks darkish due to sclerosis of the lens fibres. The rest of the ideas explainable from the above condition of the vitreous.

P. Liganasam. "Bhringa neela nira.....linganasana." (Pupillary area appears oily and looks dark like beetle).

This is the black cataract. Along with this condition a disease called "Hariswa" drishti pithena.....darsini" in which large objects appear small, long ones appear short. Evidently this is the condition of high myopia to which our black cataract is often associated.

III. Kafha Timiram. "Kafhena timirai.....chachitam." In this objects seen, look oily and appear very white like conch, moon, white lotus or jasmine flower).

K. Kacham. "Kachetu.....vachitam." (Pupillary area appears whitish and seem to see objects lit up by bright sun, moon, or bright light).

K. Linganasam. "Sitha bhasa.....lakshyatey" (Lens is tremulous like a drop of water on a lotus leaf. It appears white as conch, moon or jasmine and has a tendency to change shape on pressure.

This is our Morgagnian cataract in all its stages.

IV. Rakta "Raktena timirai.....(Objects appear red or copper coloured and in its Kacham, the pupillary area appears reddish and objects seen are red or black and in its Linganasam pupillary area is red and vision deteriorated and the person is blind).

V. The combinations of Vata, Pitta and Kafha give six diseases of which the first is "Nakulandam" in which the iris is brick red like that of the mongoose and objects appear in many colours and sees nothing at night. The next is "Dhoshandam" in which the humors are immobile for want of sun light and in its presence the doshas melt and vanish elsewhere in the body. The third is "Ushna vidagdha" in which when cold water is poured on the exposed body, the external heat suddenly draws in and mixes with the

humors and produces hot feeling in the eye and causes misty dim vision and night blindness.

We are familiar with night blindness and also day, snow, eclipse and colour blindness. We cannot appreciate the mobility of doshas being influenced by the presence or absence of the rays of the sun. Some of us have stayed long in countries where sun's rays are absent for months but have not seen night blindness for want of heat to melt away these doshas.

To us night blindness is either a congenital defect with good day vision, no physical defect, no sex peculiarity and if acquired it is due to retinitis pigmentosa, punctata albescence, or a xerophthalmic condition and in rare cases due to fasting or long marches.

Of the remaining three the first is "Amala-vidagha" in which the humors are deranged by eating unwholesome food, the next is "Doomaram" in which the vision is disturbed by grief in the loss of wife or wealth or due to pyrexia or due to head injury and the third is "Oupasargikam" produced by seeing exciting objects or looking at too bright light resulting in the reaction in the constitution thus upsetting the humoral balance and produces redness in the eye.

It is difficult to apportion western connotations to these none too precise conditions. It appears to me that the 2nd. is a case of secondary optic atrophy and the third is macular choroiditis or Berlin's opacity.

Of "Samsarga" and "Sannipata" varieties there is nothing illuminating to note here.

From the foregoing resume we have in all twenty-seven diseases affecting the visual apparatus and for our purpose and for the convenience of my readers I may group them as follows:—

(*i*) When Vata is the principal offending factor we expect some inflammation in the uveal tract resulting in the formation of complicated cataract and its sequelæ.

(*ii*) When Pitta is the chief causative factor we expect some degenerative changes in the fundus with subsequent lens complications.

(*iii*) When Kafha is the predominating dosha we expect no abnormal fundus but a Morgagnian cataract.

(*iv*) When Rakta is the dominant dosha grave fundal conditions in the way of hæmorrhage, detachment, angiomatosis etc. are to be expected.

(*v*) When combination of doshas are at fault with sullen resentment of one or more doshas we expect night blindness, secondary optic atrophy and macular choroiditis.

The above is, in short, the view I have been able to form from my study of this ancient literature and in presenting this I earnestly invite my readers to criticise this endeavour.

STUDIES IN THE LAST CHOLERA EPIDEMIC AT MORADABAD

A. K. BHATTACHARYA, M.B. and B. P. GUPTA
Moradabad

The importance of cholera amongst all the infectious diseases of the tropics is threefold:—(1) periodicity of appearance of the disease in endemic areas—it waxes and wanes but never disappears altogether; (2) very sudden onset quickly assuming the picture of a grave medical emergency and (3) the dramatic change in the outlook of such a deadly disease by timely and rational methods of treatment which has reduced the mortality, right from 60 to 70 per cent down to 15-20 per cent. It is interesting to note that cholera, claiming to be Indian in origin, the discovery of its causative organism and modern treatment was perfected in an Indian Hospital also, though by two great foreign scientists.

In the present paper we propose to make only a brief review of the disease as it appeared in epidemic form at Moradabad from 30th July to 14th September, 1940. Fortunately Moradabad is not strictly an endemic area of the disease but Hardwar is so partially, and communication being very easy and speedy between these two places cholera is from time to time imported to our city from there. And still why it should take an epidemic form here, only rarely, is worth considering. Reviewing for the last 10 years or so, the municipal public health records reveal some interesting facts:—"We had cholera here in epidemic form in 1929 during rainy season, lasting till the end of September, with 44 deaths. There were some cases in 1934 (July to September) with 6 deaths. Next, in April, 1938, just after the Hardwar Kumbha Mela there were some imported cases from there with 5 deaths. The same year from July to September there were again some cases with 6 deaths. Then in 1940 (30th July to 14th September) we had another epidemic with 59 seizures and 35 deaths." Thus seasonal incidence of cholera at Moradabad within the last decade has always been in the rainy season (July to September).

Rise of absolute humidity with pollution of water supply due to rains are probably the factors at the root of this particular seasonal incidence. It seems likely that absolute humidity of this place rises to the critical cholera level of 0·4" or above, at this period of the year. For want of humidity figures, we regret, we cannot confirm this. As regards rainfall, average in our district is between 36"-40". In 1940 the reading was 40·35" whereas in 1939 it was only 29·6", showing a definite failure of rainfall. This corroborates Roger's axiom that invidence of cholera epidemic here in 1940 was associated with deficiency of rainfall in 1939. Then again in the last decade, cholera thrice visited us regularly between 4th to 5th year (1929, 1934 and 1938) but last time only after 2 years (1940) and that also with more than the usual severity. The severity

Case No.	Sex and Age	Hours passed since onset	Condition in the beginning of treatment.	Intravenous Saline	Subcutaneous saline.	Uræmia.	Result.	Remarks
1.	M. 50	14	More or less perfectly collapsed; copious vomiting and purging rice-water stools, anuria, restlessness, cramps, hoarse voice, almost imperceptible or no radial pulse; washer-woman's hands and feet, cyanosis of varying degree.	Twice ..	Once ..	—	D ..	Got over collapse stage; urination started but stopped again;
2.	M. ch. .. 12	12		Twice ..	Once ..	+++	D ..	Death due to uræmia.
3.	M. ch. .. 14	12		Once ..	Once ..	—	C ..	
4.	M. 25	6		Once ..	Once ..	—	C ..	
5.	M. 27	10		Once ..	Once ..	++	C ..	
6.	M. 40	10		Thrice ..	Rectal ..	+++	C ..	Repeated collapses; worst case of uræmia. Prolonged asthenia and low temperature.
7.	F. 65	12		Twice ..	Rectal ..	+	C ..	Inoculated 4 days before onset.
8.	F. 37	72		Twice ..	Once ..	+	C ..	Relapse after 3 days requiring saline again.
9.	M. ch. .. 13	24		Once ..	— ..	—	D ..	Inoculated 4 days before onset; death due to hyperpyrexia.
10.	F. 52	14		Twice ..	Once ..	—	D ..	Severe tympanitis.
11.	F. 30	48		Twice ..	— ..	++	D ..	Already uræmic when seen.
12.	M. ch. .. 12	16		Once ..	Once ..	—	D ..	
13.	M. 54	12		Once ..	Once ..	—	D ..	
14.	M. 30	12		Once ..	— ..	—	C ..	
15.	F. 35	14		Once ..	— ..	—	C ..	
16.	M. 26	28		Once ..	— ..	—	C ..	
17.	F. 25	12		Once ..	Once ..	—	C ..	
18.	F. 25	20		Once ..	— ..	++	C ..	Marked asthenia; took long to recover.
19.	F. 65	18		Once ..	— ..	—	D ..	
20.	M. 52	20		Once ..	— ..	—	D ..	
21.	F. 30	14	Frequent vomiting and purging, scanty or no urine, radial pulse feeble, cramps in many cases.	— ..	Twice ..	—	C ..	
22.	F. 35	24		— ..	Once ..	—	C ..	
23.	M. 30	10		— ..	Once ..	—	C ..	
24.	M. 16	8		— ..	Twice ..	—	C ..	
25.	M. 18	6		— ..	Once ..	—	C ..	
26.	F. 30	10		— ..	Twice ..	—	C ..	Pregnant (no abortion).
27.	F. 25	18		— ..	Twice ..	—	C ..	Pregnant (no miscarriage).
28.	M. 26	10		— ..	Once ..	—	C ..	
29.	F. ch. .. 7	12		— ..	Once ..	—	C ..	

(Case No. 1 to 20—serious group; 21 to 29—mild group).

+ mild; ++ moderate; +++ severe; — nil; D = death; C = cured.

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of the epidemic in 1940 was possibly more or less like that of the last epidemic in 1929. Guessing from the above should we expect a mild recrudescence of cholera here in the rainy season of 1942? The brunt of the attack of the last epidemic was in mohalla-Katghar. According to public health records out of a total of 50 seizures, 26 were from Katghar (44%) and 33 from all the other affected mohallas combined. Our estimate is even much higher at Katghar. The apparent discrepancy might be due to all the cases not being notified to the health department, and also mild cases being not recorded there. Total death as shown in public health records was 35 *i.e.,* 59 per cent. of which Katghar had 15 (*i.e.,* about half the total mortality). Such a high mortality rate in municipal records is suggestive that only severe cases were recorded, that some real cases escaped from being recorded and that all cases could not get proper treatment. Mortality rate with us was 31 per cent. Why Katghar was singularly unfortunate than other mohallas is not easy to explain. The drainage system in that mohalla according to public health authorities is practically the same as in other mohallas of the city but some suggestive factors are not unlikely to be as follows:—

(1) During the epidemic pipe-water supply was comparatively less in Katghar. (2) Many of the houses occupied by patients seen by us there were kuchha built. (3) What we observed was that certain localities fed by particular wells were more affected than other localities of the mohalla possibly pointing to the source of infection in those wells. The above does not exclude, however, why mohallas like Asalatpura, Nawabpura, Quannangyan etc., with more or less similar housing and water supply system did not share the same lot with Katghar.

The health department performed in all 7435 anti-cholera inoculations amongst whom, according to records there were 2 seizures and 1 death. Case No. 7, an old lady of 65 and case No. 9 a boy of 13 in our series were inoculated and both got the attack on the 4th day of inoculation. Both were serious cases—former survived and latter died. This brings to the question of immunity in cholera. It is an established fact that though the average incubation period of cholera is very short (1-5 days), in cases it can extend to several days (up to 10). The impossibility of ascertaining the date of commencement of incubation upsets all effort at accurate determination of the time factor in development of immunity after inoculation. It is likely that either these two unfortunate cases were already incubating cholera when they were inoculated or the negative phase immediately followed by the inoculation precipitated an acute attack. Here is a series of 29 cases—12 males, 12 females and 5 children—24 from Katghar, 2 from Quanongyan, 2 from Banglagaon and 1 from village Machharia—most of them treated jointly and a few independently by us. This series includes only those cases that had clinically the signs and symptoms of cholera, doubtful cases being excluded. It is very difficult in private practice to bacteriologically confirm all cases. But for all practical purposes, they were cases of cholera in grades of mild to very severe. Out of these 29, 20 cases were severe and some of these were bacteriologically confirmed. All these 20 were typically collapsed and given intravenous saline, one to three times in each case, according to conditions. 9 deaths of the series were from amongst this severe group. The remaining 9 were mild cases not requiring intravenous saline; subcutaneous saline along with oral medication saved all the 9 cases. Out of 29, 9 died, giving a mortality of 31 per cent. Of the 9 deaths 5 (cases No. 1, 10, 12, 13 and 20) were from families having very scanty facilities for proper treatment and nursing and all the 9 were late cases. None of them were first seen by us before 12 hours of onset and some as late as the 3rd day. Apart from the fact that all the deaths were from late cases, age of 5 of them ranged between 50-65 years (case No. 1, 10, 13, 19 and 20) which is itself of grave prognosis. Excluding these 5, death rate comes to 13·7 per cent only. Then there were 2 children in these 9 and prognosis of cholera in children is always bad. Of the 9, 7 (cases No. 1, 10, 11, 12, 13, 19 and 20) died in collapse, both caused by dehydration and vasomotor failure due to toxæmia, as intravenous saline did not act nicely in these; neither were cardiovascular stimulants of any real help, case No. 2 died of uræmia. Case No. 10 had tympanitis which could not be relieved by anything. There was a strong suspicion that some opium preparation was given to her previously by a Vaid. Case No. 9 died of hyperpyrexia. Of the 2 cases with pregnancy (case No. 26 and 27) both were mild and none had abortion. Of the 11 severe cases that survived, in most the saline treatment began much earlier and many of them were fortunate economically and socially *i.e.,* better off prognostically. It is worth mentioning that cases No. 7 and 6, mother and son two of the worst cases of the series, survived most miraculously. The former was 65 years of age, with anæmia, very weak having twice collapsed, each time, requiring I. V. saline whereas latter collapsed thrice requiring every time several pints of I. V. saline, had very bad uræmia having persistent low temperature, asthenia, nausea, deep breathing and comatose condition for several days. Both these cases were bacteriologically positive. Of course these two cases had very good nursing and other facilities at their disposal.

Coming to treatment adopted in our series besides meeting the chief symptoms, whatever we did was to combat the three main dangers that one comes across in severe cases of cholera namely—(1) collapse due to dehydration was met with by I. V. saline repeated as many times as necessary, (2) collapse due to cardiac or vasomotor weakness due to toxæmia was met with by atropine, glucose, pituitrin, caffeine soda benzoas and other cardiovascular stimulants, (3) Uræmia—in every case of I. V. saline invariably the first pint or so was alkaline saline. This is the best preventive for this worst complication of cholera. Yet some cases get uræmia and we had 5 such (besides 2 mild ones) of which we lost 2 and cannot but congratulate ourselves on the survival of the other 3. Uræmia once developed is very difficult to cure. As a rule, we gave plenty of glucose, alkalies, caffeine-soda benzoas, etc., freely in these cases.

The importance of measuring the Sp. Gr. of blood as a routine procedure before each intravenous transfusion in cholera, cannot be too much stressed. Unfortunately for various

reasons, this could not be arranged while treating these cases. As a result, we regretfully note, that we were badly handicapped in certain instances. As for example while putting in I. V. saline in cases No. 1, 10, 11 and 19 it was found that pulse improved to a certain extent after some one pint or so went in but there was no further improvement in the pulse with more saline, rather there were some disagreeable symptoms appearing, for which it had to be stopped. It is evident that collapse in these cases was not so much due to loss of fluid as to vasomotor paralysis or cardiac weakness or both. A previous record of Sp. Gr. of blood is invaluable in such cases. Post infusion reactions were severe in all the 4 and it is our experience that only small quantities of saline should be given I. V. at a time, in children. One should also be ready to meet post infusion reaction promptly and adequately. To a practised hand I. V. injection in children is not so difficult as it may appear, even by the closed method.

Subcutaneous saline was given in mild cases and as a supplement to I. V. injection in some severe cases or where I. V. injection was contraindicated due to any cause. In cases where we could anticipate a second collapse, I. V. injection was always supplemented by one pint or more of normal saline in the breast and this helped much in a number of cases. One has got to be handicapped about subcutaneous saline for the considerable pain it causes, thereby adding to the shock also, in bad cases. It is not well absorbed when circulation is very feeble. There is also danger of sepsis. All the 9 cases in the mild group of the series, besides a good number of those in the severe group were given subcutaneous saline. For want of nursing facilities rectal saline could be given only in cases No. 6 and 7.

We gave kaolin in large quantities in iced water in most of the cases. Due to its power of absorption of the toxin from the intestines, rendering it inert, it is a valuable drug, but to have its full effect it has to be given in heavy doses and frequently (bolus alba).

In one or two cases enteric coated potassium permanganate pills were given. Though theoretically potassium permanganate is the ideal drug orally, as it is the only antiseptic that is also antitoxic, but practical difficulty is that it cannot be given in sufficient doses without greatly irritating the already congested gastro-intestinal mucosa and kidney cells.

For the vomiting we have found fractional doses of calomel, menthol, camphor with a little soda bicarb and kaolin repeated every ½ to 1 hour—doing good in many cases.

After the collapse stage was over alkaline mixture with digitalis and glucose was continued in many cases for several days.

Before closing we take this opportunity of expressing our grateful thanks to Dr. B. D. Wadhwea, our Health Officer, for kindly allowing us to utilise in this paper, some valuable informations regarding cholera epidemics, from his office records. Our hearty thanks are also due to Dr. Tyagi for the trouble he has taken for us in this connection.*

*Read before the Moradabad Medical Association in its March Meeting, 1941.

NOTES AND NEWS

MADRAS MEDICAL COUNCIL

The Registrar Madras Medical Council in a notice issued on the 4th February, 1942, states:

Registered Medical Practitioners who own Registration Certificates with the numbers given below are requested to forward their certificates without delay to the Registrar, Madras Medical Council, 79-81, Mount Road, Cathedral P.O., Madras, for verification and return, as the records referring to these numbers are not traceable in the office. If no reply is received by the 15th March, 1942, it would be taken for granted that registration certificates bearing these numbers were not issued at all.

5178; 5189; 5190; 5193; 5194; 5195; 5196; 5197; 5198; 5203; 5204; 5205; 5206; 5207; 5208; 6427.

EQUIPMENT OF AIR-RAID DOCTORS

1. A large haversack. 2. A torch. 3. Wool, lint, a towel, bandages and iodine. 4. A tourniquet, scalpel, artery forceps, scissors, padded splints and sticking plaster. 5. Morphine, syringe. 6. Chloroform, anæsthetic mask. 7. A funnel and rubber tube with teat for feeding a trapped case.

TREATMENT AT FIRST-AID POSTS

First-aid posts:—1. Protect casualty hospitals from a rush of minor and ambulant cases. 2. Provide early treatment when receiving hospital is at a distance. 3. Treat nervous shock, arrest hæmorrhage, relieve pain, give first-aid to cases requiring transfer to casualty receiving hospital. 4. Whether mobile or fixed staffed by qualified and unqualified personnel.

General guidance:—1. Handle dressings as little as possible. 2. Small fragments from explosives may inflict serious injuries to underlying parts though apparently trivial outside. 3. Severe injuries to soft tissues—dress after removal of foreign body, treat shock. 4. Tourniquet—painful, seriously endangers vitality of a limb; relax it after 15 minutes to see if bleeding has stopped; not to be applied for more than an hour. Level 'T' and time of application while evacuating. 5. Splint affected limb. 6. Abdominal wounds—entrance may be insignificant, pain may be present, rigidity may be absent; note increased pulse rate; cover protruding intestine with moist gauze dressing, morphine when pain and restlessness; make a note on casualty card; rapidly evacuate. 7. Burns—cover with suitable dressing *e.g.*, moistened picric acid dressing, morphine. 8. Tetanus antitoxin for all open wounds routine dose of 2 c.c. of 26,000 I.U. 9. Simple fracture with extensive

wounds—stop hæmorrhage, immoblize part with a splint. 10. Nerve injuries—note in casualty card and immobilize part. 11. Wounds of joints—immobilize after covering with a dressing. 12. Compound fractures: keep warm, cut away clothing to expose wound, morphine if pain; immobilize; correct gross deformity without attempt to set; handling increases shock. 13. Head injuries—morphia greater than 1/16 gr. avoided; apply artery forceps to bleeding points on scalp; use non-irritating dressing, pack with moist gauze; note on casualty card. 14. Chest injuries—if crusting strap; if tension pneumothorax; insert sterile serum syringe needle under local anæsthesia (1% novocaine or procaine); secure bleeding vessels with artery forceps or tying a suture round ribs if penetrating injury. Pack with moist gauze. 15. Neuroses—(i) be firm, authoritative yet sympathetic; appeal personal and patriotic pride; convenience patients if the symptoms do not indicate serious injury, give large dose of bromide (*ii*) When confusion, excitement, loss of memory or disorientation—rest, warmth, hot drinks with plenty of sugar, bromide gr. xx—xxx, luminal gr. I. (*iii*) When restless and excited—morphia or luminal intramuscularly gr. 1 ss. combined with hyoscine hydrobromide gr. 1/100.

Warning labels: T for tourniquet. H for hæmorrhage. X for penetrating wounds chest and abdomen. C for gas contaminated. S for antitetanic serum given.

—(*B. M. J.* Supplement. Sept. 1939: p. 166)

NET-WORK PLAN FOR DEALING WITH INVASION CASUALTIES

A. *Some undisputed facts*:—(*a*) We cannot know until air and sea invasion starts what part of the country will be most severely engaged by the enemy. (*b*) Collection of the wounded in the most of these parts by means of ambulances will be impossible for a period from one to seven days. (*c*) Even if the collection of wounded is possible, it may be undesirable because the nearest hospital is threatened or already destroyed. (*d*) In isolated areas cut off from other means of medical assistance casualties will have to be retained and treated near to whether they occur.

B. *Those whom the plan will benefit*:—(*a*) Local residents will benefit from the posts near to them. (*b*) Coast towns may be nearly empty; the remaining inhabitants will spread out to adjacent country side for they may not be able to deal with the hundreds of fires in empty houses. Net-work plan will provide medical help to them. (*c*) Thousands of troops carried towards the enemy in motor vehicles. They cannot escape air attack and wounding.

C. *Composition of Net-Work*:—(*a*) In the towns there are hospitals, aid posts with large staffs and many excellent first aid units connected with factories and works, railways and so forth. Street fighting and destruction of aid posts may wreck town organisation if reliance is placed on too few centres. (*b*) In the country with a few aid posts things are not so good. To these we should add empty wards of isolation hospital, all asylums, most public assistance institutions, sick-boys used for evacuees and military aid posts. All these must be carefully entered upon a map in every county and rural districts. The best people to set up these posts may be the members of the local invasion commmittee.

D. *Supplementary Posts*:—(*a*) Additional posts will be required to make the network complete. They must be able to retain the wounded upto seven days. They wouldn't provide major surgery. It would not be possible to provide a doctor at every post. Every 5-6 posts will come under the care of one doctor who will attend those when needed. In every post there will be one with first aid and nursing experience. It will be possible to provide rest, warmth, food, dressing and morphia—these are great things, far more important than the services of a surgeon.

E. *Policy of dispersal*:—(*a*) This plan is normal and logical expansion of A.R.P. services. If invasion dissipate and disperse casualties, the medical relief should be so done, big Hospitals carry one year's supply of dressings in reserve. Food and ammunition are dipersed, the medical stores should also be dispersed. Army and civilian morale depends very much upon the belief that casualties will be delt with wherever they occur. At the moment this belief is a delusion. It is helping Hitler if we leave the wounded to die by the road side.—GORDON WARD, *B. M. J.* (1941)—Nov. *22*: p. 736.

IMPROVEMENT OF DIET IN INDIA

Dr. W. R. Aykroyd, Director of the Nutrition Research Laboratories, Coonoor, in the third edition of Health Bulletin No. 23, entitled The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets writes: "It is not only the poor, whose choice in the matter of food is extremely limited, who are ignorant and prejudiced about diet and suffer in health because of it. Plenty of people in India and elsewhere, who could afford to consume an excellent diet, and feed their children on an excellent diet, do not in fact do so. One can readily find among children of the more prosperous classes cases of serious malnutrition and food deficiency disease.

"Those who suffer from under- and mal-nutrition usually cannot afford to purchase a satisfactory diet. Many residential institutions for children in India are very short of money, and have often to feed their boarders on Rs. 3 per head per month, or a good deal less. Now it is difficult, in fact impossible, to supply a really satisfactory diet for such sums.

"But even when poverty prevents the purchase of a diet which satisfies modern standards of nutrition, it is often possible to make effective improvements with little increase in cost.

"It is desirable that children should consume upwards of 8 ozs. of milk a day—8 ozs. being an amount below that recommended as optimum by nutrition workers elsewhere. If available funds do not admit the addition of this quantity of whole milk, butter-milk, or skimmed milk reconstituted from skimmed milk powder, may be supplied.

"Careful experiments have shown that the giving of 8 ozs. of skimmed milk daily to children fed on an average 'ill-balanced' Indian diet results in an acceleration of growth and a great improvement in health and well-being. Such an addition is not very costly, and is now being supplied in a considerable number of children's homes in India, to the great benefit of the children.

"Calcium is found abundantly in milk (including skimmed milk and buttermilk), cheese and green leafy vegetables. Amaranth, fenugreek and drumstick leaves are rich in calcium. Children need relatively more calcium and other minerals than adults, just as they need relatively more protein. Rice is very deficient in calcium, and there is evidence that insufficiency of calcium is one of the most important defects of the rice eater's diet.

"If the cereal consumed is milled rice, an improvement in the nutritive value of the diet (and in the health of those consuming it) can be brought about by wholly or partially substituting whole rice, whole wheat or one of the millets, particularly ragi.

"If milled rice remains the basis of the diet, it should be realised that the milled rice eater needs more 'protective' foods—milk, green vegetables, fruits, etc.—than the consumer of whole wheat or ragi. When the diet is almost wholly composed of rice—when people are so poor that they cannot afford to buy other foods except in minute quantities—then the state in which the rice is eaten becomes of paramount importance. Parboiled rice, even when milled, is superior in nutritive value (particularly as regards the anti-beri beri vitamin) to raw rice milled to the same degree.

"Diets in children's homes, and among the general population, are often low in fat. Addition of extra vegetable oil (at the expense of a quantity of cereal supplying an equivalent number of calories) does not greatly increase expenditure. Pure ghee or butter is, of course, preferable to vegetable fat, but very much dearer.

"Pulses are rich in protein and in some of the B vitamins; 2 to 3 ozs. per day increase the nutritive value of a diet largely composed of cereals. However, the pulses in general are less valuable dietary supplements than animal foods such as milk, fish and meat.

"More use could perhaps be made of groundnuts, which are rich in various food-factors, including some of the B vitamins, as human food. Half to one ounce daily helps to supply some of the elements in which poor rice diets are deficient.

"Fruits should always be included in children's diets. Plantains, a cheap fruit often supplied in hostels, are good food but not of exceptionally high nutritive value. Tomatoes and oranges and other 'juicy' fruits are richer in vitamins and make a useful addition to diets of the poorer type.

"Daily doses of iron or calcium lactate may have an excellent effect. Within recent years, the chemical composition of a number of vitamins has been discovered and some of them can now be manufactured cheaply and in large quantities. Vitamins produced in this way are just as valuable to the body as vitamins contained in foods.

"Further developments in research or industry may make it possible to produce many vitamins in pure form at so low a cost as to make their widespread use in improving poor Indian diets a feasible proposition. This stage has not yet been reached, and meanwhile it is necessary to rely chiefly on suitable combinations of ordinary foods in devising improved diets.

"But the idea of giving malnourished children a daily capsule containing more than their requirements of the various essential vitamins in concentrated form is not so outlandish as it seems.

"In England, pure vitamin B, made in a factory, is being added to bread made from refined wheat flour to bring its nutritive value nearer to that of wholemeal bread. In America also, great interest is being taken in the possibility of 'fortifying' foods and diets by means of cheap manufactured vitamin preparations. The uninterrupted development of scientific research for a few decades may produce the most striking and unexpected results in this direction."

INDIAN SCIENCE CONGRESS

The following have been elected presidents of the different sections of the 1943 session of the Indian Science Congress, to be held in Lucknow from January 2 to January 8, next year. Consequent on the decision of the general committee at its meeting during the Benares session of the Science Congress in January, 1941, the fourteen sections into which the Congress had divided its work have been regrouped into twelve sections as noted below and they will hold their first sessions in Lucknow.

Mathematics and Statistics—Dr. S. C. Dhar, Nagpur University, Nagpur.

Physics—Dr. H. J. Bhabha, Indian Institute of Science, Bangalore.

Chemistry—Dr. S. S. Joshi, Hindu University, Benares.

Geology and Geography—Lt.-Col. E. A. Glennie, Survey of India, Dehra Dun.

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Physiology—Dr. B. Narayan, P. W. Medical College, Patna.

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Applications must be forwarded through the director of a recognised research institute or laboratory where the candidate proposes to work.

Full particulars may be had from the Secretary, The Lady Tata Memorial Trust, Bombay House, Bruce Street, Fort, Bombay.

PETROL RATIONING AND THE MEDICAL PROFESSION

Dr. Chaman Lal Mehta, Jt. Hony. Secretary, Indian Medical Association, writes: As a number of members of the medical profession found it difficult to manage their work on the ration of petrol as announced on the 1st January, 1942, Dr. Chamanlal Mehta, Jt. Hony. Secretary, Indian Medical Association interviewed the Provincial Rationing Authority, for Bombay Province on the 8th January, 1942 and put before him all the difficulties of the general practitioners, consultants and those attached to the public hospitals, both in the city and the province of Bombay. Mr. Kothawalla, the Provincial Rationing Authority gave a patient hearing and sympathised with the members of the medical profession for the inconvenience and hardships likely to be caused to them. Realising the difficulties of the profession put forward by Dr. Chamanlal, he had allowed the doctors two-thirds of the total ration (basic and supplementary) they had received for the month of December. Shortage of petrol was the only reason for the present cut. It was with the greatest difficulty that he could give two-thirds, while the other provinces granted only half the previous ration. He asked Dr. Chamanlal to advise the members of the medical profession not to approach him as he would not be able to make any further consideration in the matter and gave an assurance that every member of the medical profession having a car will get for January two thirds of the petrol ration he had for December. Provided the situation does not deteriorate the same arrangement will be continued for the next quarter commencing from 1st February, 1942.

The members of the medical profession will get half the basic ration on Form H. Application for supplementary ration should be made on K Form, mentioning therein that the applicant belongs to the medical profession—Semi Essential Service. He should also mention on it the quantity of basic and supplementary ration (in gallons and not in units) granted to him for December, 1941. On the receipt of such an application he will be granted supplementary ration to make up the two-thirds of his December, 1941, ration.

When asked for advice as to what should be done to meet the increasing difficulty in getting petrol, Mr. Kothawalla advised the doctors to equip their cars with the coal gas producing plants.

Dr. Chamanlal thanked Mr. Kothawalla for the interview and consideration shown to the medical profession.

Coal gas producing plants as available at present are not suitable for the cars. The Indian Medical Association, Bombay Branch, is making an inquiry in the matter.

YELLOW FEVER DANGER TO INDIA

The danger to India of the introduction of yellow fever considerably increased with the outbreak of the war. Necessary defensive measures have been planned which have so far kept India immune from this danger.

Among the measures taken was the promulgation of the Indian Aircraft (Public Health) Emergency Rules, which laid down that no yellow fever infected aircraft should land, on entry into India, at any other place than Karachi Air Port in the case of land planes and Karachi Marine Air Port in the case of sea-planes. They also provided for the isolation and observation in the mosquito-proof isolation hospital of persons suffering from or suspected to be suffering from yellow fever as well as of uninoculated persons who had been exposed to infection. Measures against the introduction of yellow fever by sea traffic are under consideration..

Sufficient stocks of yellow fever vaccine for inoculation have been obtained from the Rockefeller Foundation of New York and the Wellcome Bureau, London. They are kept in

cold storage at the Central Research Institute, Kasauli, the Haffkine Institute, Bombay, the King Institute, Guindy, and the Provincial Public Health Laboratory, New Delhi, and facilities for inoculation now exist in these places.

In the event of yellow fever being introduced into India and sufficient stocks of vaccines not being available from New York or London, the necessity of manufacturing the vaccine in this country has been noted. It is learnt that arrangements have been made to send an experienced officer of the Medical Research Department to the United States for training under the Rockefeller Foundation in the manufacture of this vaccine.

Inoculations have been done at Delhi of officers and staff of the Government of India who would have to deal with a yellow fever outbreak and it has been decided to inoculate those persons at the ports of Bombay and Karachi who are likely to have dealings with a ship or aircraft infected with yellow fever.

CORRESPONDENCE

The Editor is not responsible for any views expressed by the contributor—EDITOR.

THE EDITOR,
Journal of the I.M.A., Calcutta.

SULPHANILAMIDE COMPOUNDS IN BACILLARY DYSENTERY AND OTHER ALLIED CONDITIONS

Sir,

In the correspondence column of your November issue (Vol. XI, No. 2, p. 58) Dr. Tripurari Gupta has written on the use of M. & B. 693 in dysentery after measles. He gave M. & B. 693 for the pulmonary complication of measles and found an unexpected improvement in the dysenteric condition also. The readers, I think, must be obliged to him for his prompt report of the new use of M. & B. 693, which he has discovered independently. A number of reports have appeared of the use of M. & B. 693 in Bacillary dysentery and allied conditions. A short article was published, I think, in the *British Medical Journal* a very few months back of the use of M. & B. 693 in bacillary dysentery and the rapid improvement after its use in B. Shiga and Flexner infections. I have also read abstracts of its use not only in dysentery but in other diarrhœal conditions also. One report describes its use in infantile diarrhœa of varied origin and its markedly beneficial effect. Sulphanilamide, Sulphapyridin and Sulphathiazole have all been tried and the author concludes that the efficacy of these drugs increases in the order mentioned. I have tried M. & B. 693 in two or three cases and Sulphathiazole in one or two cases. I can only say that the results are most encouraging. I think it has been shown that in *in vitro* experiments drugs of the Sulphanilamide series are lethal or at least inhibitive to the growth of organisms of the colon-typhoid group including B. Typhosus. As far as I know, no convincing or at least very encouraging report of their use in enteric fevers has appeared. On one occasion when the development of a complicating pneumonia in an enteric case seemed to threaten the life of a patient, I gave M. & B. 693. The pneumonia subsided very rapidly and there was corresponding improvement in the condition of the patient, but I think it had no effect on the course of the enteric infection. Any how, the whole subject—drugs of the sulphonamide series in the treatment of infections by the colon-typhoid group—needs thorough and urgent study because of the wide prevalence of the infections in India, and the many advantages of a chemical compound over a serum.

(*i*) The organism must be identified and corresponding serum used, even specific serums are not useful against all organisms nor are they available at all places and at all times. (*ii*) Specific serums to be most effective must be used in the first few days of the disease, which may not always be possible. (*iii*) Serums deteriorate with time. (*iv*) Serum treatment as a rule is more costly. (*v*) The dangers attending the use of serum—anaphylactic shock and serum sickness. For these reasons, now that some favourable results have appeared, it is high time to study the question thoroughly and estimate its true worth.

With reference to the reports I have already mentioned, this being only a short note I think there is no need to hunt up all the references. Anyhow one of the latest to appear is by M. L. Cooper, R. L. Zucker and Stewart Wagones under the title Sulphathiazole for Acute Diarrhœa and Dysentery of Infants and Children (*J. A. M. A.* Nov. 1, 1941). They conclude "statistical analysis showed that Sulphathiazole was of therapeutic value in patients whose stools were positive for Shegella Paradysenteriæ, but was without demonstrable effect in the treatment of patients whose stools were negative for S. Paradysenteriæ." Yours, etc.,

J. C. AMPURAN.

St. Thomas Dispensary &
Nursing Home, Kottayam
16-12-41.

ASSOCIATION NOTES

BENGAL PROVINCIAL COUNCIL—Meeting held on 13-9 41 with Dr. Subodh Datta in the chair:

The following members were unanimously nominated President and Vice-Presidents of the I.M.A. for the ensuing year:—

Dr. A. Said (Karachi), President, Dr. Subodh Datta, (Calcutta), Dr. Tridib Banerjee (Patna) and Dr. A. Latiff Sayeed of Hyderabad (Decan)—Vice-Presidents.

The following resolutions moved by Dr. P. K. Guha were passed:—

(*a*) Resolved that the Bengal Provincial Branch of the Indian Medical Association is of opinion that all medical men, registered under Bengal Medical Act, 1914 and working in the non-Government hospitals, dispensaries, and commercial firms, should be allowed at least one month's privilege leave and fifteen days' casual leave every year with pay or allowance, as the case may be.

(*b*) Resolved further that copies of the above resolution be forwarded to the heads of all non-Government hospitals, dispensaries and commercial firms employing medical men as well as to the Government and Local Bodies for favour of necessary action.

Dr. Guha was requested to supply a list of non-Government hospitals, dispensaries and commercial firms employing medical men.

The report of the Rural Public Health Re-organisation Sub-Committee was placed before the house.

Resolved that the report be circulated to all the branches with a request to submit their opinion on the same as early as possible, latest by the 31st October, 1941.

The final nominations received from the different branches *re.* election of office-bearers for the year 1941-42 were placed on the table for scrutiny and the following were elected office-bearers as they received the highest number of votes:—

Dr. Nagendranath Bhattacharyya (Senior), Khulna—President; Dr. Probodh Kumar Banerjee (Howrah), Dr. Panchanan Chatterjee (Calcutta) and Dr. Sunil C. Bose (Calcutta)—Vice-Presidents; Dr. K. K. Sen Gupta, (Calcutta) and Dr. B. K. Ghosh (Barrackpore)—Secretaries; Dr. Banbehari Banerjee (Calcutta) and Dr. Ranjit Sinha (Calcutta)—Asst. Secretaries; Dr. Bolindranath Ghose—Treasurer.

The formation of a new branch at Fuleswar (Howrah) with seven members was recorded.

CALCUTTA BRANCH—Meeting of the Executive Committee, held on 2-9-11 with Dr. K. Chakrabarty in the chair:

The following resolution was carried unanimously, all standing:—

Resolved that the Calcutta Branch of the Indian Medical Association places on record its deepest sense of sorrow at the demise of Dr. Rabindranath Tagore, one of the greatest sons of India and the greatest poet of the age who has elevated the status of India in the estimation of the world. This Association offers its respectful homage to his sacred memory and sincerest condolence to Sj. Rathindranath Tagore and the members of his family.

Further resolved that the Calcutta Branch of the Indian Medical Association places on record its deepest sense of sorrow at the sad and untimely death of Dr. J. M. Modak, a member of this branch, and offers its sincerest condolence to the members of his bereaved family.

Resolved that the following members be finally elected office-bearers of the Bengal Provincial Branch for the ensuing year:—Dr. Nagendranath Bhattacharyya, (Senior), Khulna—President; Dr. Panchanan Chatterjee, (Calcutta), Dr. Sunil C. Bose, (Calcutta), Dr. Probodh Kumar Banerjee (Howrah)—Vice-Presidents; Dr. K. K. Sen Gupta (Calcutta) and Dr. B. K. Ghosh (Barrackpore)—Secretaries; Dr. Banbehari Banerjee and Dr. R. Sinha—Asst. Secretaries; Dr. B. N. Ghose—Treasurer.

Resolved that the following members be finally elected President and Vice-Presidents of the I. M. A. for the ensuing year:—Dr. A. Said, (Karachi)—President; Dr. Subodh Datta (Calcutta), Dr. A. Latiff Sayeed, (Hyderabad-Deccan) and Rao Bahadur Dr. T. S. Tirumurti (Madras)—Vice-Presidents.

A letter dated 12th August, 1941, from the Hony. General Secretary, I.M.A., forwarding copies of two letters from a Headquarters member of the B. P. Branch, *re.* legal and basic rights of a medical man for acceptance or refusal of a call, was considered.

Resolved that the above letter be referred to the Standing Committee for disposal.

A letter dated 25th August, 1941, from the Hony. Secretary, Association of Surgeons of Bengal, *re.* accommodation and facilities to that Association to hold meetings at the premises of this branch, was considered.

Resolved that the office of the Association of Surgeons of Bengal be accommodated in this Association premises free of charge up to September, 1942, and that the said body be requested to pay something towards rent when their funds permit.

MUZAFFARPUR BRANCH—Ordinary meeting of the Executive Committee, held on 25-11-41:

Resolved that this committee views with grave concern the action of the Petrol Rationing authorities, Muzaffarpur, in refusing sanction of supplementary coupons for petrol to some members of the medical profession of Muzaffarpur in actual practice of medicine on the ground that such a member was 'not entitled to any supplementary ration' and he should 'avail of other conveyances available for moving about in connection with his professional calls'. In this connection, also resolved that while this committee reiterates its desire to enjoin upon the members of the Association the necessity to co-operate with the Government in the petrol rationing scheme, it also feels that the said action of the authorities is in direct contravention of the Government communique released to the press on the eve of the introduction of the said scheme which expressly laid down that the use of petrol by doctors for their professional work was to be regarded as 'an essential service' and, as such, they would be allowed such supplementary rations. Further resolved that this committee takes this opportunity to

represent the fact that the want of petrol by a doctor will hamper the patients in getting prompt and timely attention and will, therefore, be bound to prove a source of grave suffering to those patients and may even jeopardise a valuable life, and, therefore, the committee urge that immediate steps be taken to rectify the hardships created by the above mentioned attitude of the said authorities of Muzaffarpur.

BERHAMPUR BRANCH (GANJAM)—Meeting held on 22-1-41:

The following resolutions were passed:—

1. This Association requests the Orissa Medical Council to publish their proceedings in suitable medical journals or the Government Gazette so that the same may serve as a guidance to the medical profession, as is done by the other Provincial Medical Councils in India.

2. This Association strongly protests against the unusual order of the President, District Board, Ganjam, in his Circular Dis. No. 1417 DB. 1940, dated 19-7-40, stating that the Board employees falling sick should get the required medical certificates for granting leave *exclusively* from the Medical Officers of the Board and refusing to recognise any certificate issued by a Private and Regd. Medical Practitioner.

3. The Bombay and Madras Governments allow a registered medical practitioner to possess for his own use preparations containing Morphia and its derivatives and Cocaine, up to two drams of each, without license. From the Excise Rules of Orissa, it appears that no quantity of any of such preparations can be possessed without license. This is a great hardship to the private practitioners. So it is unanimously resolved to request the Government of Orissa to allow all regd. medical practitioners to possess these drugs up to the minimum quantity without license, just as in the other Provinces.

BOMBAY MEDICAL UNION (BOMBAY BRANCH, I.M.A.)—The following resolution *re.* the Bombay Medical Practitioners' Act of 1938 (Proposed Amendment by Government, in the *Bombay Government Gazette,* dated 11th November, 1941) was passed at the meeting of the Managing Committee, held on 21-11-41:

The Managing Committee of the Bombay Medical Union is of the opinion that the Amendment proposed by the Government is neither necessary nor desirable nor urgent and is against the highest interest of both the community and the medical profession in India. Power to exempt any person from the provisions of the Act is likely to be gravely abused. The Managing Committee of the Bombay Medical Union feels that the amendment goes directly against the principle and spirit of the Act itself and strongly protests against the proposed amendment and feels that no person, as an individual, should be exempted from the provisions of the Act of 1938.

ANDHRA PROVINCIAL BRANCH—Meeting of the Provincial Council, held on 13-12-41, with Dr. V. Venkatarathnam, M.B.B.S., of Ellore in the chair:

Dr. M. Seshacharyulu, L.M. & S., was elected Secretary and Dr. K. V. Subbarao, L.M. & S., of Masulipatam and Dr. P. V. Ramachandrareddy, M.B.B.S., of Nellore, Joint Secretaries.

Dr T. Chidanandam, L.M.P., Kottapeta, Guntur, Dr. V. Venkataratnam, M.B.B.S., Ellore, Dr. C. Suryanarayanamurty, Bezwada, Dr. T. V. S. Chelapatirao, Bezwada, and Dr. K. V. Subbarao, L.M. & S., Masulipatam, were elected members of the Working Committee.

As the diet given to "C" class prisoners in the Government jails is found to be wanting in essential ingredients of food, both qualitatively and quantitatively, the Andhra Provincial Council of the Indian Medical Association urges its Branches to send their considered opinion in the shape of a Resolution before the end of February, 1942.

The Andhra Provincial Branch of the I.M.A. is hereby authorised to collect the contributions due to I.M.A. from its constituent branches and send the amount to the I.M.A., Calcutta, after deducting its quota.

Resolved that the opinions of the various Constituent Branches be called for upon the ethical committee report published in May. '41, number of the J.I.M.A.

Resolved to request the Central Council of I.M.A. to grant Rs. 100 for propaganda purposes in the Andhra Districts for the year 1941-42.

SEWAN BRANCH—Meeting held on 15-12-41 at the residence of Dr. Mohammad Hasan with Dr. A. K. Ghosh, Gopalgunj, in the chair:

Resolved that the Behar Provincial Branch be requested to start a Family Gratuity Fund wherein the immediate provision for burials, etc., may be made at earliest possible notice by the Provincial Branch Secretary to be realized later by the members of provincial branch in such sufficient quantity which would meet the immediate loan and at the same time feed the mother fund so started all over the province. Further resolved that a minimum sum to defray the possible cost as affixed by the committee council should be particularly limited to a sum of say Rs. 50 in acting this the committee council should be guided by the understanding of the harassment of the family concerned just as Police and Amla association do.

Resolved that a copy of the resolution of Dr. Mohammed Hasan be forwarded to all members to elicit their opinion on the subject.

Resolved that rupee one be the monthly subscription of the members of this association from 1942.

MEERUT MEDICAL ASSOCIATION (MEERUT BRANCH, I.M.A.)—General Meeting held on 19-12-41 with Dr. Bhupal Singh, President, in the chair:

Regarding collection of Central Fund contribution, resolved that this branch is of opinion that the Central Fund Contribution should continue to be collected through the Provincial Branch, when one exists, and, if Rule 10-A (c) is in any way against this, it may be suitably amended.

Regarding formation of a Central Ethical Sub-Committee, etc., resolved that this branch is of opinion that the time is not ripe yet for the formation of Ethical Committees.

Drs. R. C. Chaurasia and S. B. Vyas were elected delegates to the XVIII All-India Medical Conference.

Dr. R. P. Goel read a paper on Medical Practice in Rural Areas. General Goil, Dr. S. B. Vyas, Dr. Murari Lal Goel and

Capt U. Sinha Gupta joined the discussion that followed.

It was decided to form a sub-committee consisting of General Goil, Capt. U. Sinha Gupta, Dr. R. P. Goil, Dr. S. K. Bhargava, Dr. J. B. Dikshit and Dr. S. B. Vyas, the Hony. Secretary, to go into the whole question and put up practical suggestions for helping the rural practitioner out of this difficulty, Dr. S. B. Vyas to act as convener.

TANJORE DISTRICT MEDICAL ASSOCIATION (TANJORE BRANCH, I.M.A.)—Meeting held on 22-11-41:

With reference to the resolutions contained in the minutes of the fourth quarterly meeting of the South Indian Provincial Branch, held at Trichinopoly on the 25th October, 1941, the following resolutions were carried unanimously:—

Resolution regarding the election of Rao Bahadur Dr. T. S. Tirumurthy, B.A., M.B.C.M., D.T.M. & H., as President of the South Indian Provincial Branch for the year 1941-42.

Resolution No. III regarding appreciation of the services of Dr. K. S. Ray, the President of the Indian Medical Association and the General Secretary, No. IV. regarding the conference of Provincial Branch to be held at Trichinopoly in Easter week, 1942 and No. V regarding appreciation of services of Dr. D. V. Venkappa, the outgoing President of the Provincial Branch.

Re. letter No. C-72, dated 15th November, 1941, of the Head Office: With reference to the resolution of the Working Committee at its meeting held at Delhi on the 26th October, 1941, regarding the direct realisation of the Central Fund contribution from the members either by despatch of the Journal or a demand card by V. P. P.—it was resolved that this association disapproves of the proposal of the Working Committee and proposes that the convention of Central Fund contribution by the local branches may be followed.

Re. the resolution of the formation of an Ethical Sub-Committee, it was resolved that the Secretary may take measures to get at the Ethical Rules adopted by the Association and published in the May, 1941, issue of the Journal of the Indian Medical Association and put it up before the members at the next meeting of the Association.

With reference to communication No. C-74 dated 15th November, 1941, of the Head Office regarding the resolution of the Kankurgachi Branch, I.M.A., the following resolutions were carried unanimously:—

Resolutions (1), (2), (4) and (5) of the Kankurgachi Branch regarding the Working Committee, Ex-President, Business Manager and Secretary were carried unanimously.

Resolution No. (3) regarding the increase of the Central Fund contribution from three rupees to four rupees per head, it was resolved unanimously that, in view of the financial state at present and the infancy of the association, this Association disapproves of the proposal to enhance the contribution and opines that the matter may be postponed for a later date under better conditions.

Tea was provided by Dr. A. J. John, the President of the Branch.

CHAPRA BRANCH—Meeting held on 3-1-42:

Resolved that a Relief team of doctors may be formed to cope in the time of Emergencies.

For the present two teams may be formed, one at Bhagwan Bazar and another at Sahebganj.

The letter from the Secretary, Sadar Man Power Committee, Chapra, was put up together with the reply sent by the Secretary, Medical Association, and the reply was approved.

Resolved that each doctor will try to persuade people in his own mahalla to take First Aid training.

KISTNA DISTRICT MEDICAL ASSOCIATION (KISTNA DT. BRANCH, I.M.A.)—Monthly meeting held on 20-12-41, at Government Headquarters Hospital, Masulipatam, with Dr. N. N. Sujeer, L.M. & S., President and District Medical Officer, Kistna, in the chair:

Re. Letters C-73 and 74, dated 15-11-41 and 30-11-41, 1-12-41, from the Honorary General Secretary, Calcutta, as also letter regarding diet of C class prisoners in Nagpur Jail, resolved that these three above subjects be put to the Managing Committee before they come to the General Body Meeting.

Dr. C. B. Ethirajulu, M.B., B.S., Assistant District Medical Officer, Kistna, Masulipatam, demonstrated five interesting cases on (1) myeloma, (2) hernia (femoral) (3) tumour mandible, (4) birth anomaly, (5) stone in the bladder.

Dr. V. Seetharamayya, L.M.P., Manikonda read an interesting case note of eclampsia with crossed paralysis.

BENGAL PROVINCIAL COUNCIL—Emergent meeting held on 29-11-41 with Dr. Subodh Datta in the chair:

The draft annual report for the period ending 30th September, 1941, and the audited accounts for the year 1940-41, as circulated, were adopted. It was resolved to note the years for which the dues accrued, against the respective branches. The provisional budget for the session 1941-42, as circulated, was adopted.

Resolved that henceforth 50% of the delegation fees realised from delegates attending Provincial Medical Conferences should be credited to the funds of the Provincial Office, according to the provision of Rule 39(a).

Monday, the 22nd December, 1941, (6-30 p.m.—Bengal Time) was fixed for holding the next Annual General Meeting.

The report of the Rural Public Health Re-organisation Sub-Committee, as circulated, was adopted.

A letter dated 10-9-41 and another letter No. C-72 dated 15-11-41 from the Hony. General Secretary, I.M.A., *re.* payment of branch contributions direct to the Central Office, were placed before the house.

Resolved that branch contributions should be paid through a Provincial Branch, where one exists, as provided for in the Constitution and also in accordance with the convention followed so far.

A letter No. C-73 dated 15-11-41 from the Hony. General Secretary, I.M.A., forwarding a copy of the resolution of the last meeting of the Working Committee held on 26-10-41 *re.* formation of Central, Provincial and Local Ethical Sub-Committees, was placed before the meeting.

Resolved that the Secretary be authorised to send a suitable reply to the same.

A letter No. C-74 dated 15-11-41 from the Hony. General Secretary, I.M.A., forwarding certain resolutions passed by the Kankurgachi Branch for an expression of opinion on the same, was placed before the house.

It was resolved that, owing to the shortness of time, it would not be possible to ascertain the opinion of the constituent branches, to consider them in a meeting of the Provincial Council and to forward to the Central Office the views of this Council before the 30th November, 1941, as required by the Hony. General Secretary. It was, therefore, decided to hold a special meeting of the Provincial Council on the 22nd December, 1941, to consider this matter and the branches in Bengal were to be requested in the meantime to send their opinions on the same by the aforesaid date, for consideration by the Provincial Council.

Resolved that Rs. 50 be sanctioned as travelling expenses to the representative of this Provincial Branch attending the Hyderabad Conference as a delegate and the names of the following members were suggested in order of preference: (1) Dr K. K. Sen Gupta (Secretary), (2) Dr. T. N. Ghosh and (3) Dr. B. B. Banerjea.

* * * * *

Special meeting held on 22-12-41 with Dr. Subodh Datta in the chair:

Resolved that this Council supports all the resolutions passed by the Kankurgachi Branch except Resolution No. 3 re: enhancement of the rate of branch contributions from Rs. 3/- to Rs. 4/-.

The following report of the Bengal Provincial Ethical Sub-committee was adopted:—

Resolved that medical practitioners registered under the Bengal Medical Act, 1914, should not teach even basic non-clinical subjects, such as, Physics, Chemistry, Botany, Zoology, Anatomy and Physiology, etc. in Medical Schools not recognised by the Bengal Council of Medical Registration and the State Medical Faculty. They must not teach clinical subjects nor undertake the responsibilities of treating patients medically or surgically in hospitals attached to teaching medical institutions not recognised by the B.C.M.R. and the S.M.F.

U P. PROVINCIAL BRANCH—Meeting of the Provinical Council held at Benares on 15-12-41 at 10-45 a.m. at Dr. B. Thungamma's residence with Captain K. P. Bagchi, the President, in the chair:

Re. the explanation of the 5 members of the Muzaffarnagar Branch and Resolutions No. 5 (i) and 5 (ii) dated 15-12-41 of the Working Committee thereon, the President explained the position as considered that morning by the Working Committee and the Secretary read out the two Resolutions, as passed by the Working Committee that morning.

Both resolutions of the Working Committee were adopted. Dr. Banarsi Das (Agra) and Dr. Makhan Lal Shinghal (Khurja) were elected as members of the proposed Sub-Committee with the Honorary Provincial Secretary as the convener.

It was also agreed that copies of this resolution be sent to all members of the Muzaffarnagar Branch for their information.

Re. the letter from Meerut Branch regarding summoning of Doctors by the Courts. The Council accepted the principle of the letter and the Secretary was authorised to correspond with Hon'ble the High Court of Allahabad and the Chief Court of Oudh on the subject.

After discussion of the Head Quarters (I.M.A.) Circular No. C-72 dated 15-11-41, it was resolved "This Council considers that the present arrangement of collecting the subscription through the Provincial Head Quarters is the right method and should be adhered to".

The Secretary read out the Head Quarters (I.M.A.) Circular No. C-73 dated 15-11-41 and, after discussion, the Council resolved that "This Council is of opinion that the time is not ripe for the formation of the Provincial Ethical Sub-Committee."

The Secretary read out the letter from Muzzaffarpur (Behar) Branch regarding T. A. to members of the Central and the Provincial Councils. After discussion, it was decided that "This Council is in favour of the principle of T. A. to representatives but considers that the method suggested in this letter is too complicated to be carried out and thinks that a simpler method will be to recommend to all Local Branches that they should consider the question of giving T. A. to their representatives in order to induce them to attend the meetings of the Central and the Provincial Councils of the I.M.A. more often. This will enable each Branch separately to make its own T. A. Rules, according to its financial capacity."

"This Council further resolves to recommend to the Local Branches in U. P. to consider this question at an early date and inform this office as to what steps they propose to take in order to enable their representatives to attend more often the future meetings of the Central and the Provincial Councils of the I.M.A."

Two Branches had sent amendments to the Rules of the Provincial Branch of the Indian Medical Association. The Muzzaffarnagar Branch had asked for general revision of the Rules and the Benares Branch had asked for a change in one particular Rule about Fee of Delegates to the Conference from the Branches.

After discussion, the Council decided that all Branches be asked to send definite suggestions for amendments to the Provincial Rules by March 31, 1942, which should then be circularised to the Branches by the Secretary for opinion and then considered by this Council in due course.

Proceedings of the meetings of the Working Committee held on 18-11-41 at Lucknow and on 15-12-41 at Benares were confirmed including the Resolution of the Working Committee on the suggestion of Allahabad Bank, Lucknow Branch. This suggestion will be adopted into the Provincial Rules when amendments are considered, as asked for in para 7 above.

* * * * *

Meeting of the Working Committee held at Benares on 15-12-41 at 9-45 a.m. at the residence of Dr. B. Thungamma with Captain K. P. Bagchi, the President, in the chair:

Re. the Allahabad Bank letter: Resolved that the Treasurer and the Secretary are jointly authorised to operate on the Banking Account of the Association.

Read Dr. Bhola Nath's letter to Captain Mukerji, and resolved that Dr. Bhola Nath, Moradabad, be informed that the matter has been finally decided by the Provincial Council and the Working Committee sees no reason to re-open the matter. A copy of this be sent to the General Secretary, I.M.A., Calcutta.

The letter of the Inspector General of Civil Hospitals, U. P., was read and the Working Committee resolved that further representation should be sent to the Government on the subject; that it appears from the reply of the Government that the resolution No. G. 371|40-41 dated 8-8-41 of the Working Committee has not been duly interpreted. In the opinion of this Committee, urgent matters may arise in the course of the year necessitating urgent representation by the Association and prompt consideration by the Government.

Re. Consideration of the explanation of the 5 members of the Muzaffarnagar Branch under Rule 13C:—(*i*) The Working Committee considered the replies received from the members concerned and called in Dr. Babu Ram Garg and Dr. Hira Lal. They having taken the sole responsibility for issuing the circular and expressed regret, on behalf of themselves and other signatories, the Working Committee resolved to recommend to the Provincial Council that the regret be accepted and further proceedings under Rule 13C against them be dropped.

(*ii*) The Working Committee recommends to the Provincial Council that a Sub-Committee consisting of the Provincial Secretary and two other members of the Provincial Council be appointed to carefully go into the matter of internal differences in Muzaffarnagar Branch and report to the Provincial Council and try to bring about a compromise to ensure harmonious working of that Branch. It is distinctly understood that the final decisions of the Provincial Council on the Sub-Committee's report will be binding on both parties to the dispute.

* * * * *

Meeting of the Working Committee held at Lucknow at the residence of Dr. H. Hukku on 18-11-41 with Captain K. P. Bagchi, the President, in the chair:

Proceedings of the last meeting of the Working Committee held on 25-10-41 at Agra, as circulated, were confirmed.

The provisional budget was passed.

T. A. to Clerk was allowed at III class Railway ticket both ways plus other actual expenses.

Permission to arrange for clerk, accommodation and buy furniture etc. was accorded to the Secretary.

The invitation from Benares for the VIII Provincial Medical Conference was accepted and 14th and 15th of December, 1941, were fixed as the dates in consultation with Captain Choudhari. It was resolved that, in view of the direction of the Provincial Council to hold the Conference this year in December, the Working Committee decided to suspend temporarily the application of the Provincial Rules para I about the Annual Provincial Conference, as far as the period of 2 months is concerned. This suspension to be confirmed by the next Provincial Council meeting at Benares.

The following Sub-committee was appointed to frame resolutions for the next Provincial Conference.

(*a*) Dr. S. C. Sen, (*b*) Dr. Hans Raj, (*c*) Dr. Pannalal Sud.

The branches be informed that (*a*) Resolutions for the next conference be sent upto the 10th of December; (*b*) papers be contributed for the Scientific section of the conference. (*c*) List of Delegates be sent by 12th of December. (*d*) Time and date of arrival of Delegates be informed to the Secretary, Reception Committee of the conference.

It was also decided that there should be no free board and lodging and that the Secretary, Reception Committee of the Conference, be asked to send the necessary information to the Branches about rates of boarding etc., at an early date.

The list of Delegates and the Resolutions be sent in duplicate, one copy to the office of the Provincial Head Quarters at Lucknow and the other to the Secretary, Reception Committee of the Conference, at Benares.

With a vote of thanks to the chair the meeting terminated.

GUNTUR DT. BRANCH—Meeting held on 24-1-42, the President, Dr. K. S. Subramaniam, presiding:

The Secretary gave a short report of the 18th All-India Medical Conference held at Hyderabad on 26, 27 and 28 of December, 1941.

Dr. K. K. Titus of the local Kuglar Hospital spoke on Recent Developments in Pulmonary Tuberculosis.

With a vote of thanks to the President, who was at home to the members, and also to the speakers and members, the meeting concluded.

FEROZEPORE BRANCH—Annual Report, 1940-41, by the Secretary: The Branch was re-started in 1940 with a membership of 10. The membership at the close of the year is 17. The response of the doctors to join the association is encouraging and augurs well for the future.

It is pleasing to note that no subscriptions are in arrears and, in this matter, thanks of the office-bearers are due to the members for their co-operation.

The following were the office-bearers during the year under report:—President—Dr. Tara Chand. Secretary—Dr. Sadhu Chand Vinyek. Representatives to the Provincial Council —Drs. Tara Chand, Sadhu Chand Vinyek. Representative to the Central Council—Dr. Sadhu Chand Vinyek.

I will be failing in my duty not to mention the circumstances under which the election of the office-bearers for the year took place on Thursday, the 12th of November, 1940, in the clinic of Dr. Sadhu Chand Vinyek with an attendance of 10.

At that time the state of affairs and apathy of the members were such that some were of the view to end it and start again, so much so, that even the zealous and life and soul members of the Association had placed before the house a resolution of dissolution; but better sense prevailed and the office-bearers, mentioned above, were unanimously elected and put in charge to steer the boat for the year to guide the

destiny of the Ferozepore Branch which had then reached the crisis of even complete extinction.

During the year, 5 meetings were called; one called for the 11th of December, 1941, could not be held on account of the absence of the majority of the members. At others the following lectures were arranged: Diabetes—its complications and treatment (12-6-41) by Capt. Raja Singh; Enteric Fever—its diagnosis and treatment (11-8-41) by Dr. Raja Ram Bhola; Caries Spine and its treatment in private practice (5-1-42) and Gallstone—its complications and treatment (15-1-42) by Dr. S. C. Vinyek.

Since through such lectures we can keep our knowledge to date, it is hoped that, in future, members should come forward willingly to give their experiences through such lectures and, at the same time, the members are requested to make it a point not to miss such lectures.

At the fourth meeting held on 9-11-41, the Trade Employees Act, the, Sales Tax Act and the Poison Manufactured Drugs Act in the Province were discussed and it was resolved to request the Punjab Government not to apply these acts to the medical profession. Copy of the resolution was sent to the proper quarters.

During the year the members were entertained to tea on four different occasions, twice by Dr. Sadhu Chand Vinyek and twice by Capt. Raja Singh. The first of these was from Dr. Sadhu Chand Vinyek to meet Capt. Raja Singh, Civil Surgeon, at his premises and the last by Capt. Raja Singh at the time of the General meeting on the 15th of January, 1942.

The following office-bearers were elected for the ensuing year: President—Capt. Raja Singh. General Secretary—Dr. Sadhu Chand Vinyek. Secretary—Dr. Raja Ram Bhola. Representative to the Provincial and the Central Council—Dr. Sadhu Chand Vinyek.

The Association could not subscribe any Journal this year owing to limited funds and had to remain contented with the Journal of the Indian Medical Association which each member was individually receiving.

SEWAN BRANCH—Ordinary meeting held on 31-1-42 in the premises of Dr. A. Rahman:

It is hereby resolved that the sixmonthly subscription (including the quota of the provincial branch) be fixed at Rs. 2|4 amending the resolution No. VII of 15-12-41.

Dr. Kali Prasad and Dr. Mohammad Hassan were elected delegates to the ensuing Bihar Provincial Medical Conference, Patna, to be held on 24th, 25th and 26th February, 1942.

Resolved unanimously that, in view of the present situation in which doctors are rather indispensable, we, the members of the Sewan Medical Association, offer our services to the public in this locality, according to arrangements made by the Sewan Branch of I.M.A. and any recognition of these services by Government, monetary or otherwise will be welcomed. Secondly, resolved that the following arrangements be made provisionally by the Association in lieu of the above resolution.

On the eastern side of the main road (Sewan P.S. to Ry. Station)—Drs. G. Prasad, A. Hassan, A. Rahman, Miss. P. Momin and D. Prasad. On the western side of the main road (Sewan P.S. to Ry. Station)—Drs. M. Hassan, H. Hassan, Chatterjee, L. Thomas and K. Prasad.

Further resolved that a copy of the above resolution be forwarded to the Sub-Divisional Officer, Sewan.

MEERUT MEDICAL ASSOCIATION (MEERUT BRANCH, I.M.A.)—General meeting held on 31-1-42 at 5. P.M. with Dr. Bhupal Singh, President, in Chair.

Dr. Ved Prakash Gupta read a paper on Gastric Ulcer. Dr. Caroli, Dr. Agarwal, Capt. Chowan, Dr. Suraj Bal and Dr. Radha Govind Das took part in the discussion that followed. Dr. Ved Prakash replied to the debate. Dr. Bhupal Singh then spoke a few words thanking Dr. Ved Prakash Gupta for the lecture. Dr. Bhupal Singh also thanked Captain Chowan for very kindly coming to the meeting and for his promise to speak on Snake Venom and its Therapeutic Uses at the next General meeting.

KISTNA DISTRICT MEDICAL ASSOCIATION (KISTNA DT. BRANCH, I.M.A.)—Minutes of the monthly meeting held on 31-1-42 with Dr. M. Seshacharyulu, L.M. & S. in the Chair.

Dr. P. Sashagiri Rao, L.M.P., Gudivada, discussed Light Treatment of Tuberculosis of Lungs and Intestines.

Dr. N. Rama Rao, L.M.P., Gollapalli, read notes on Intravenous injection of dilute hydrochloric acid for various complaints.

EAST GODAVARY DISTRICT MEDICAL ASSOCIATION—Minutes of the General Body Meeting held at Cocanada on 24-1-42 at 5 p.m.:

Sri A. L. Anantanarayana Iyer, M.B., B.S., was elected President, Drs. B. Sankararao and Y. Ramasubramanyam Secretaries and Drs. B. S. S. Prasadarao (Samalkot), I. Jogarao, M.B., B.S. (Cocanada), R. Venkatarao, M.B., B.S. (Rajahmundry), B. Sitaramayya, L.M. & S. (Kottapeta), J. E. Gabriel, Lady Apothecary (Cocanada) and K. Jaggarao (Peddapuram) members of the Managing Committee.

Resolved that the East Godavary Dt. Medical Association, Cocanada, becomes a Branch of the All India Medical Association (Andhra Branch).

Resolved that the Secretary is authorised to collect subscriptions for the journals and send to the Provincial Secretary for necessary action.

RAIPUR BRANCH—Meeting held at the Silver Jubilee Hospital, Raipur, on 1-2-42:

The following resolution was passed:

Resolved unanimously that the transportation of rice to areas outside Raipur would be definitely injurious to the health of the city. The house was of the opinion that the famine and starvation resulting thereby would certainly hasten the outbreak of epidemic like cholera, which, at the present moment, was already showing signs of spreading in the neighbouring villages for reasons mentioned above. The house, therefore, requested the authorities concerned to take proper steps to maintain the food supply of the city by preventing its transportation to other areas in large quantities and thus protecting the city from grave epidemic.

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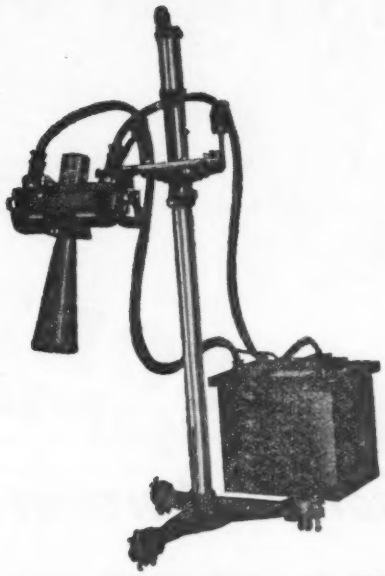

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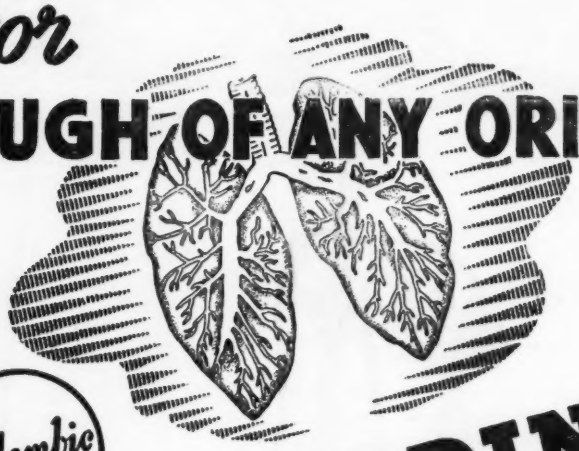

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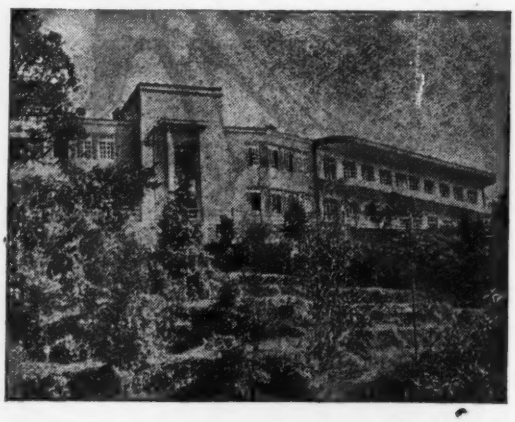

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